**SKODA**

OIL INDUSTRY

ŠKODA WORKS LTD., PLZEŇ

HEAD OFFICE PRAGUE BOHEMIA

OIL INDUSTRY

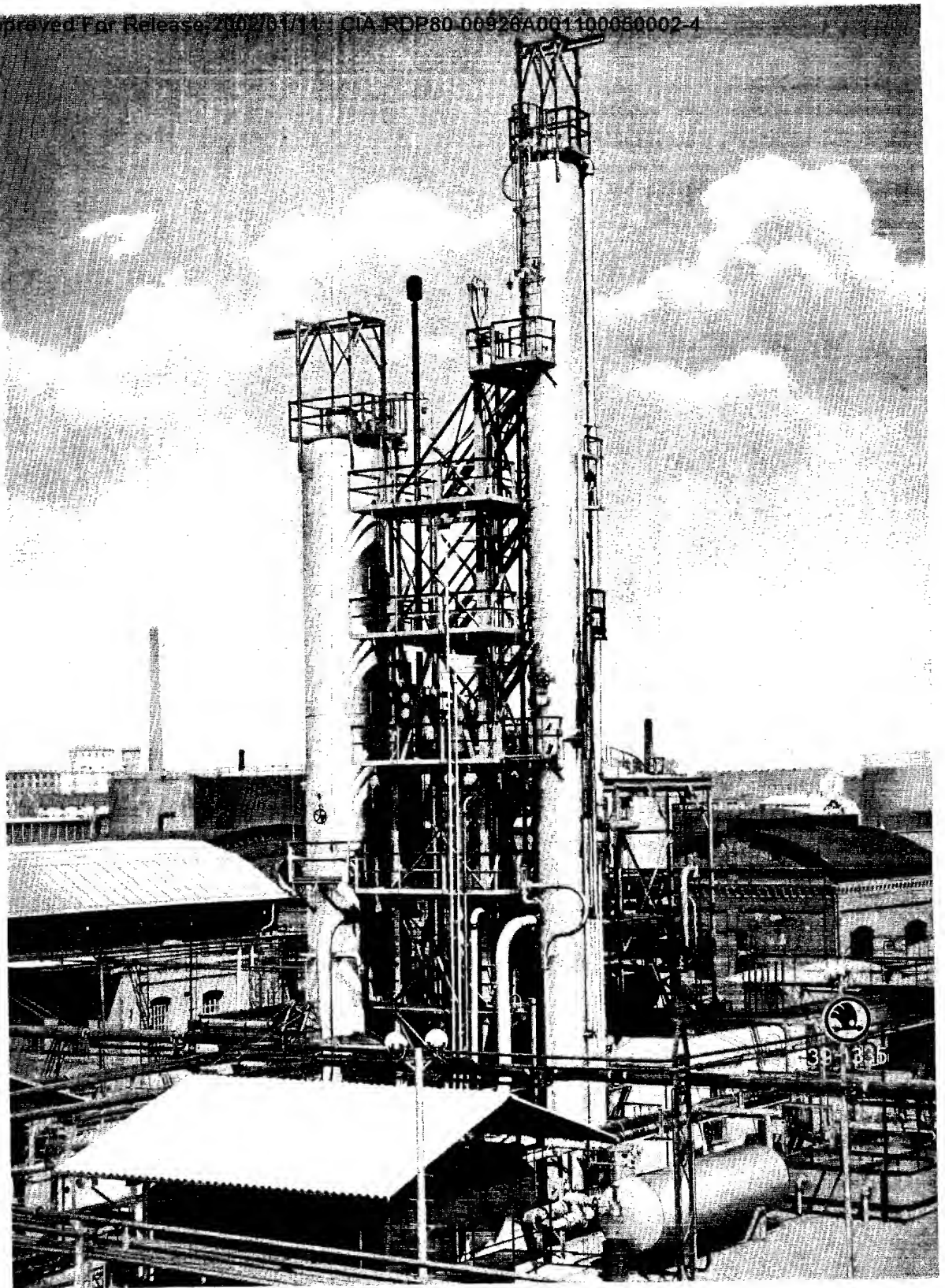
DISTILLATION, CRACKING, AND REFINING



THE ŠKODA WORKS, in close collaboration with prominent world's concerns, have been building industrial plants for the treatment of mineral oils for quite a number of years past.

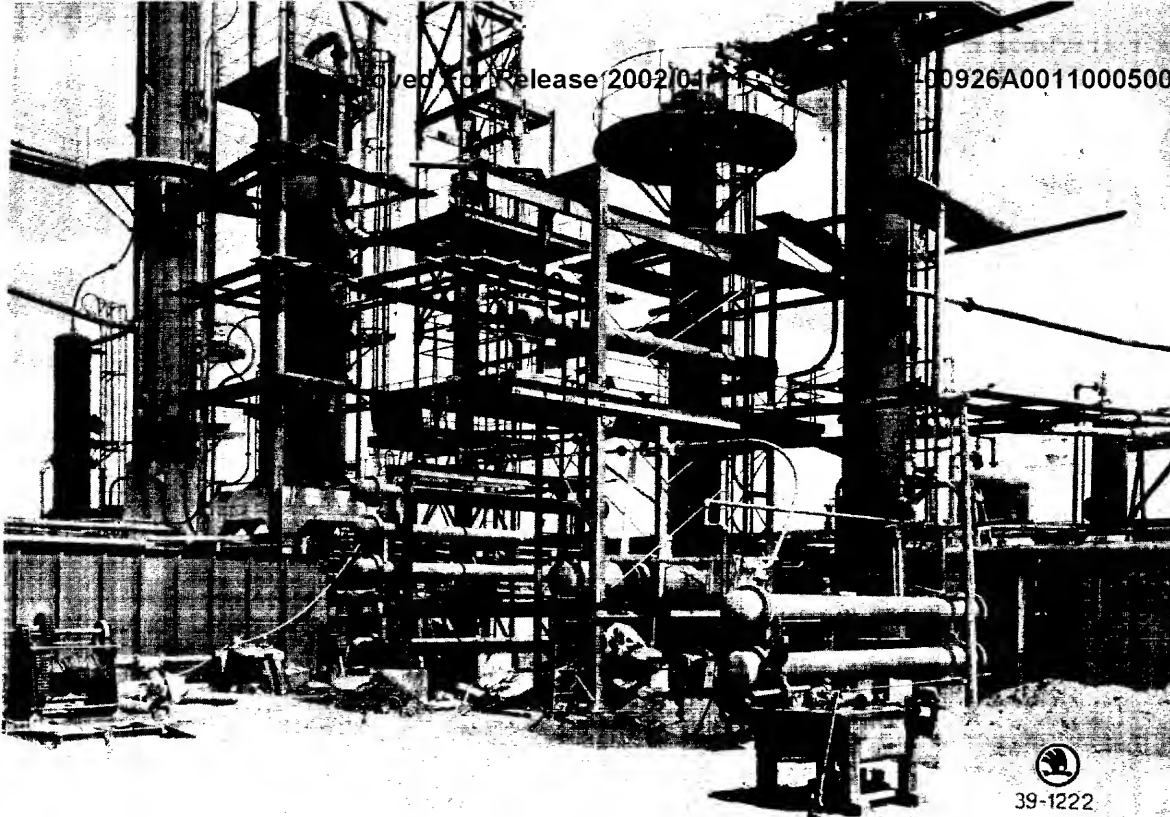
The invaluable advantages of their own iron-works and construction material, supported by the manufacturing capacity of their workshops, have placed the Škoda Works among the most renowned works supplying not only individual apparatus but also complete plants for the treatment of mineral oils. Experience and technical progress are closely linked in all the equipments supplied, which are characterized by high efficiency and economy with a special view to a simple arrangement and safety in operation.

The Škoda workshops have at their command all the modern means for welding thick-walled vessels, complying with the ASTM Boiler Code, equipments for checking welds of the largest thicknesses by means of X-rays, annealing furnaces, etc. The wide range of the manufacturing programme of the Škoda Works in this line comprises special manufacture of high-pressure seamless hollow-forged vessels (reaction chambers), heating furnaces for crude oil, all kinds of storage tanks, special oil pumps, safety and auxiliary equipments, as well as complete distilling, cracking, and refining plants, parafin producing plants, auxiliary power plants, etc.



Combined atmospheric
and vacuum pipe-still unit
with heaters

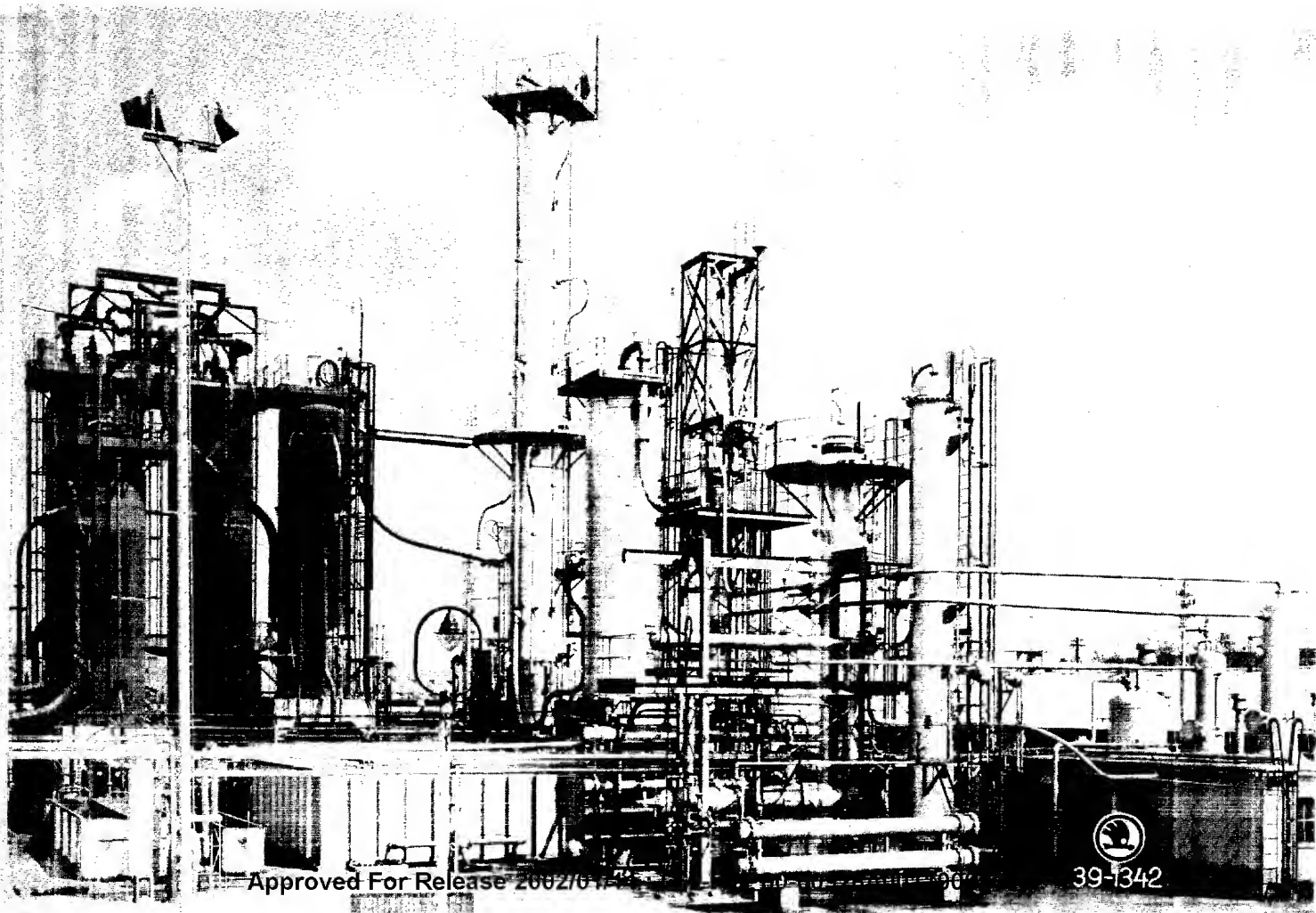
The Škoda Works deliver either single-column pipe - still units working alternately as atmospheric and vacuum or combined (multi-column) units according to requirements. They can also be fitted with a de-paraffining equipment permitting treatment of crude oils of whatever composition.



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Parts of "Dubbs"
cracking plant du-
ring erection

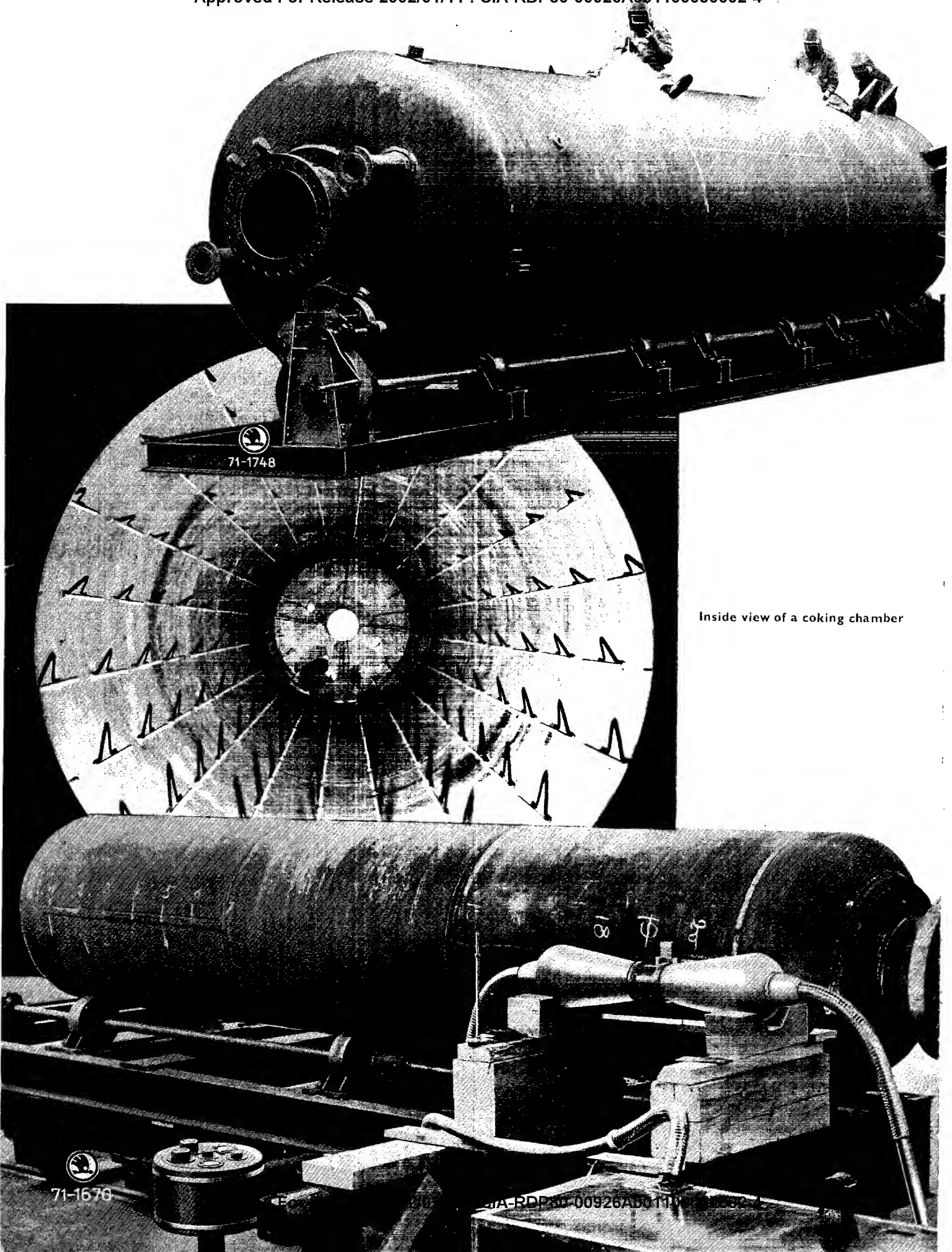
General view of a "Dubbs" cracking plant



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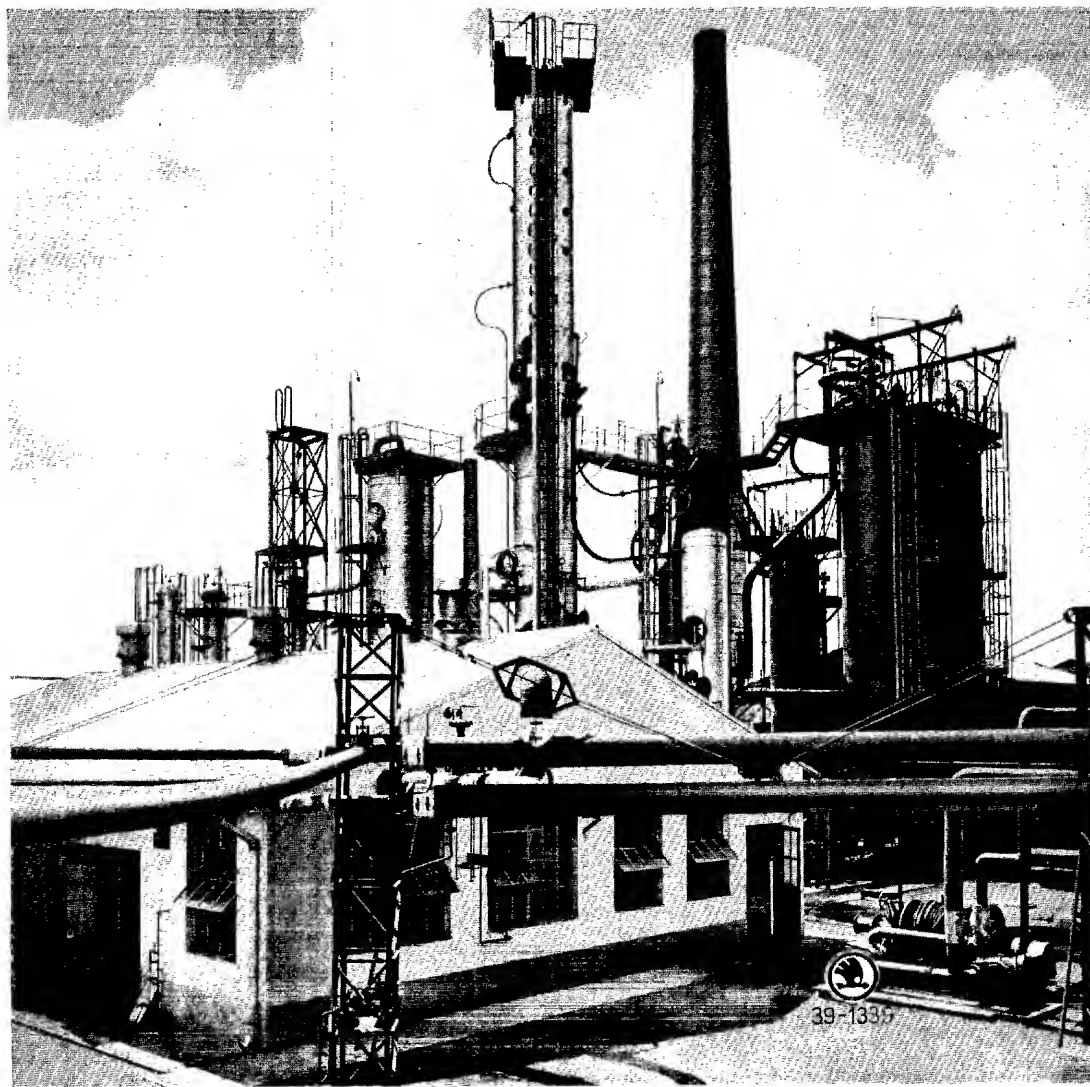
Inside view of a coking chamber



Reaction, coking, flashing, and fractionating columns of a "Dubbs" cracking plant

The Skoda Works construct the so-called "selective" system of cracking equipment attaining optimum conditions for the decomposition of heavy oils, which yield cracked gasoline of a high octane number.

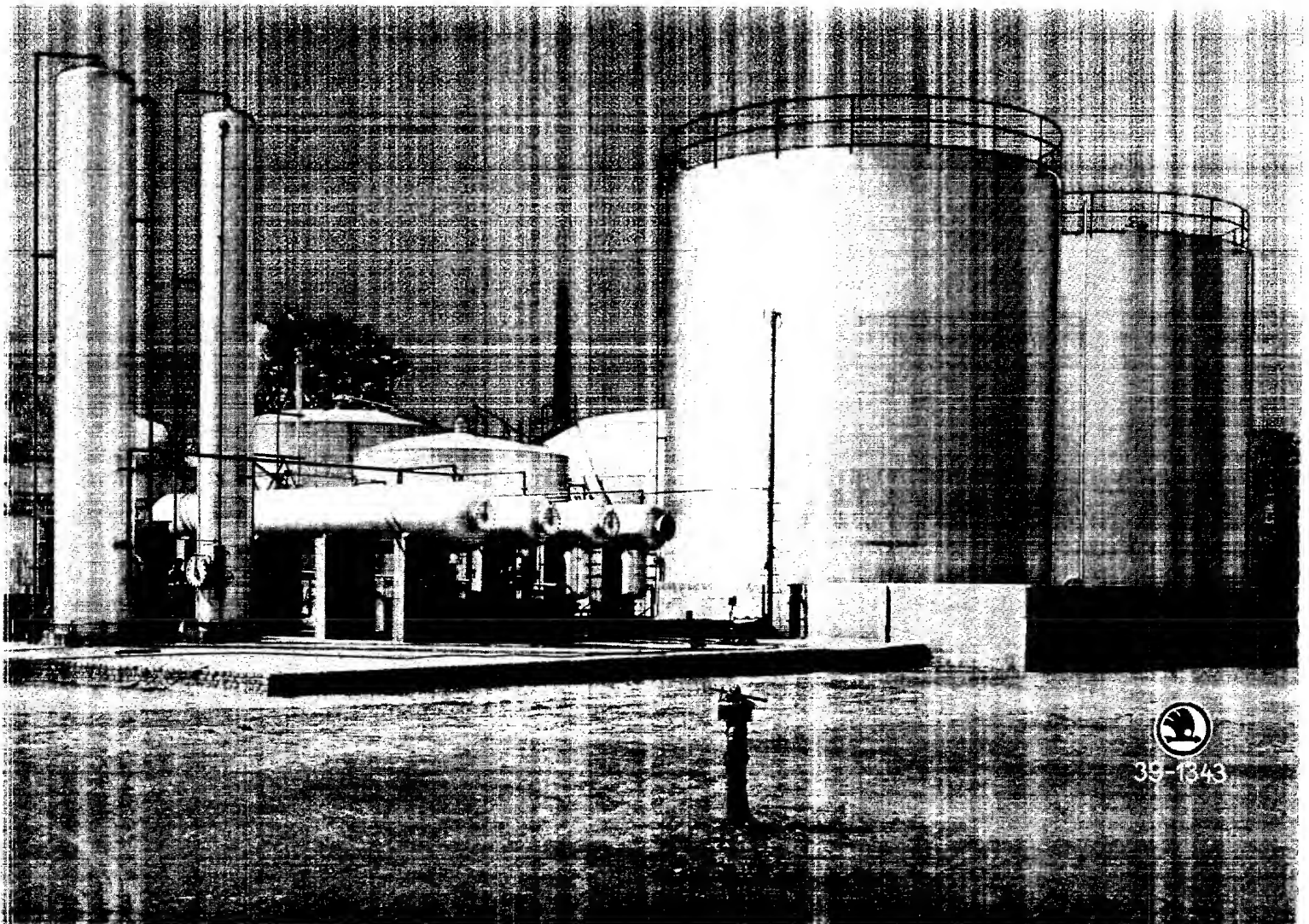
Electric welding of coking chamber for a "Dubbs"
plant in the Škoda workshops (thickness of walls $1\frac{1}{2}$ in.)



View of a "Dubbs" plant with a pumping station at the front

Checking of welds by means of X-ray apparatus

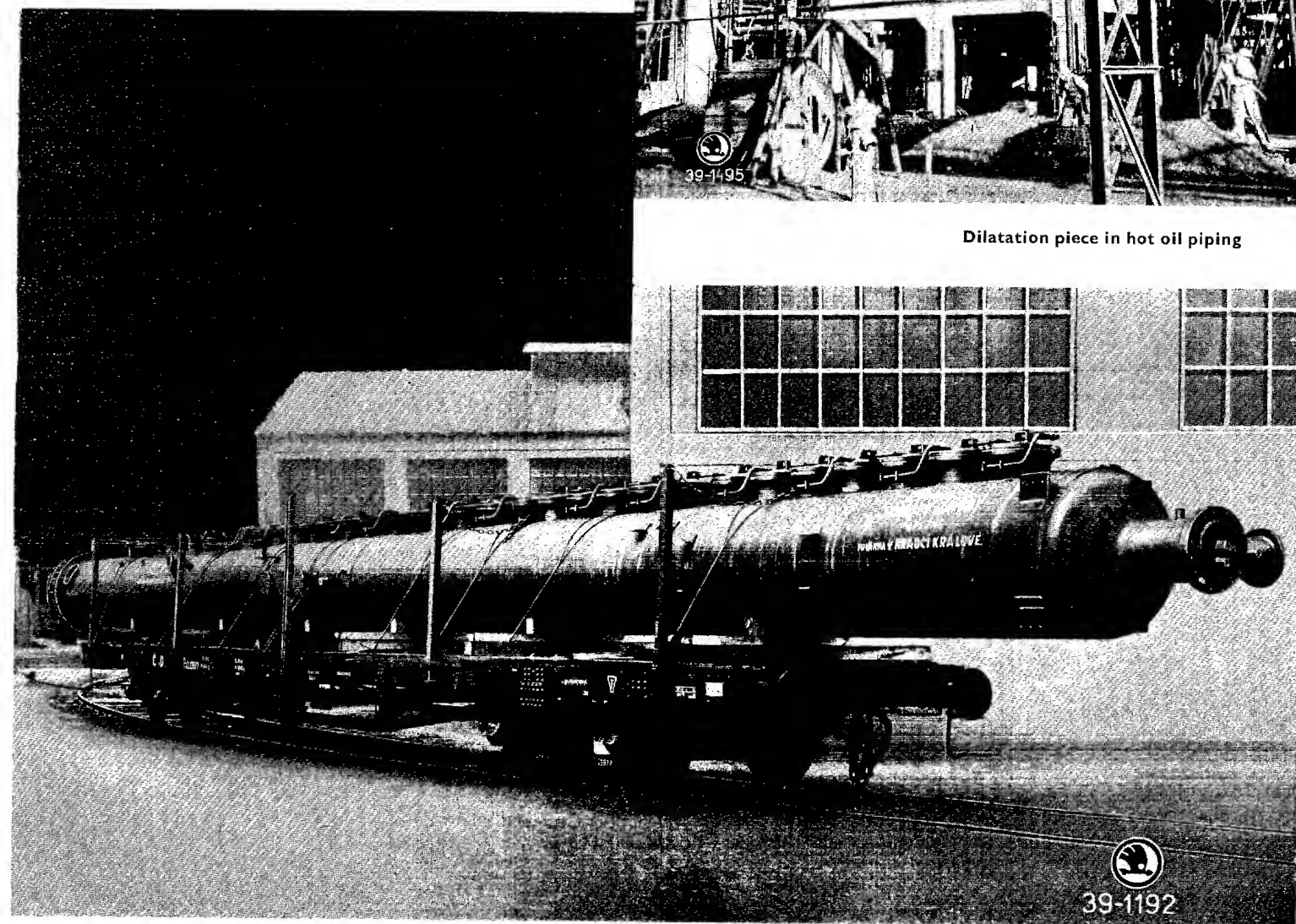
The Works supply all equipments for the final purification and refinement of products obtained in treating crude oils by the distilling or cracking process (e. g. Gray process, refinement by means of sulphuric acid, sweetening, adding of so-called "inhibitors", etc.). Storage tanks equipped with all necessary safety devices are built for the largest capacities.



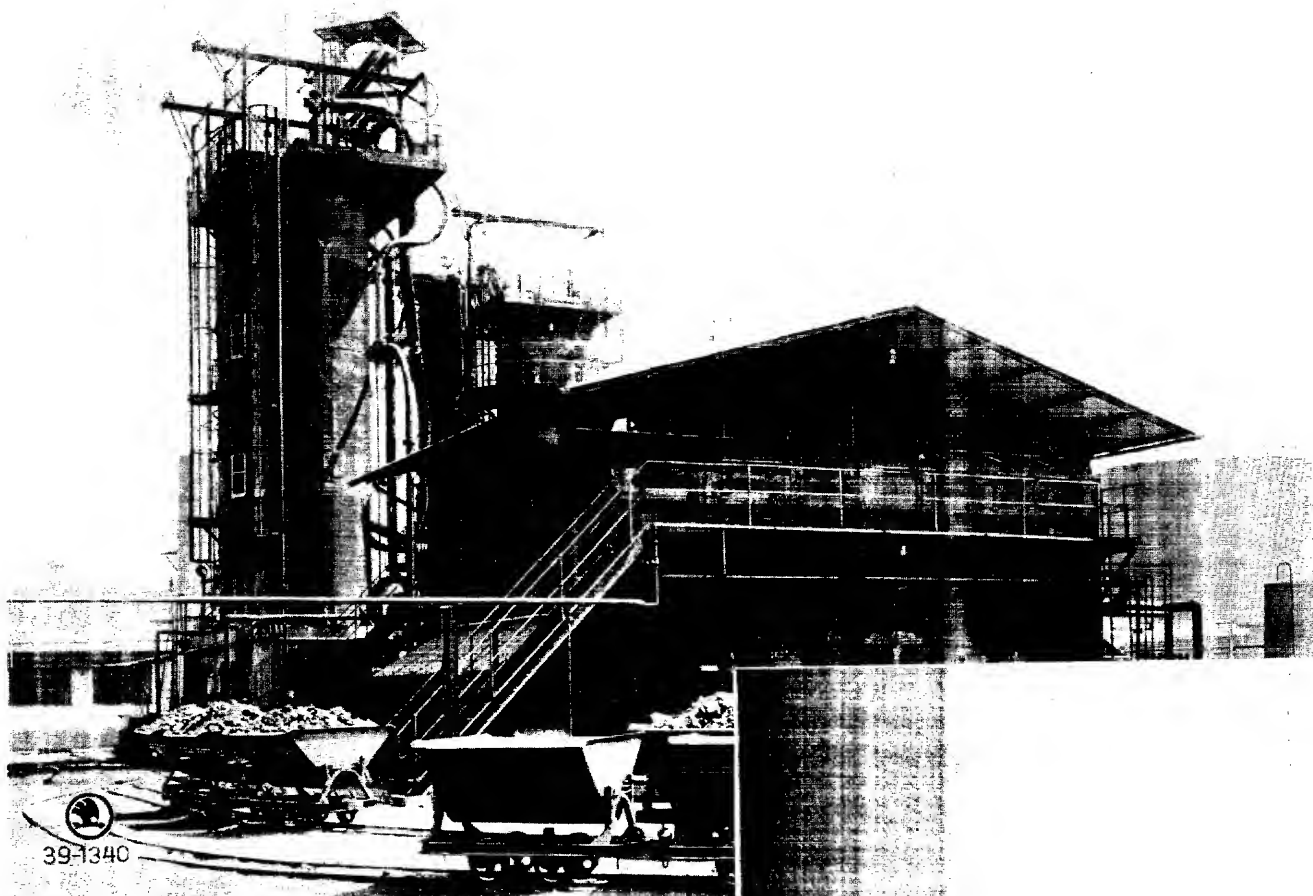
Equipment for continuous refining of cracked gasoline



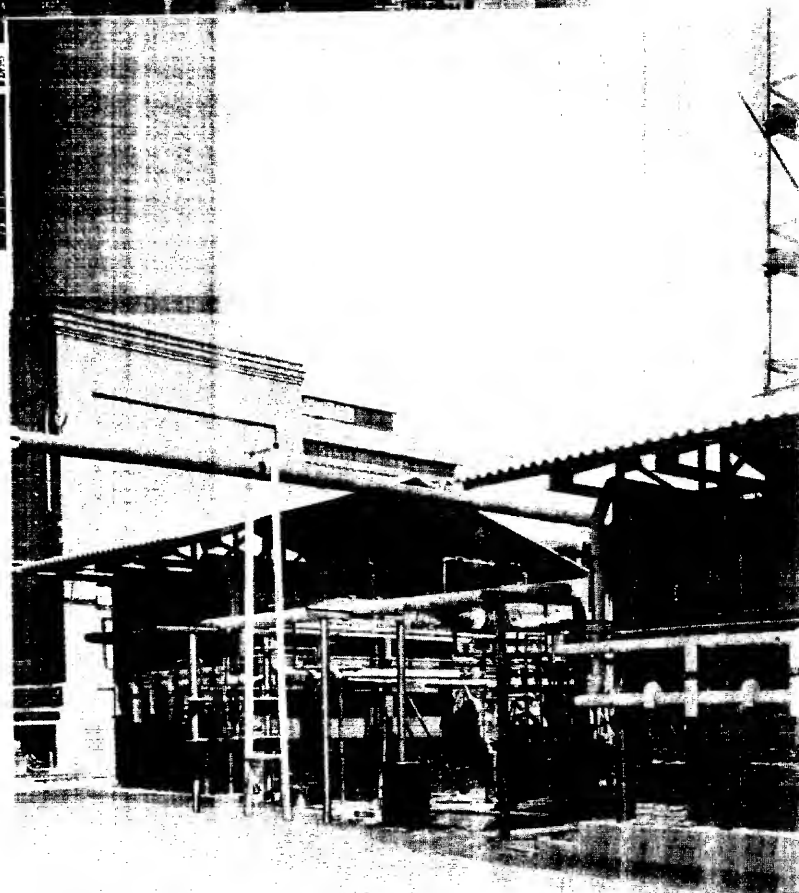
Dilatation piece in hot oil piping

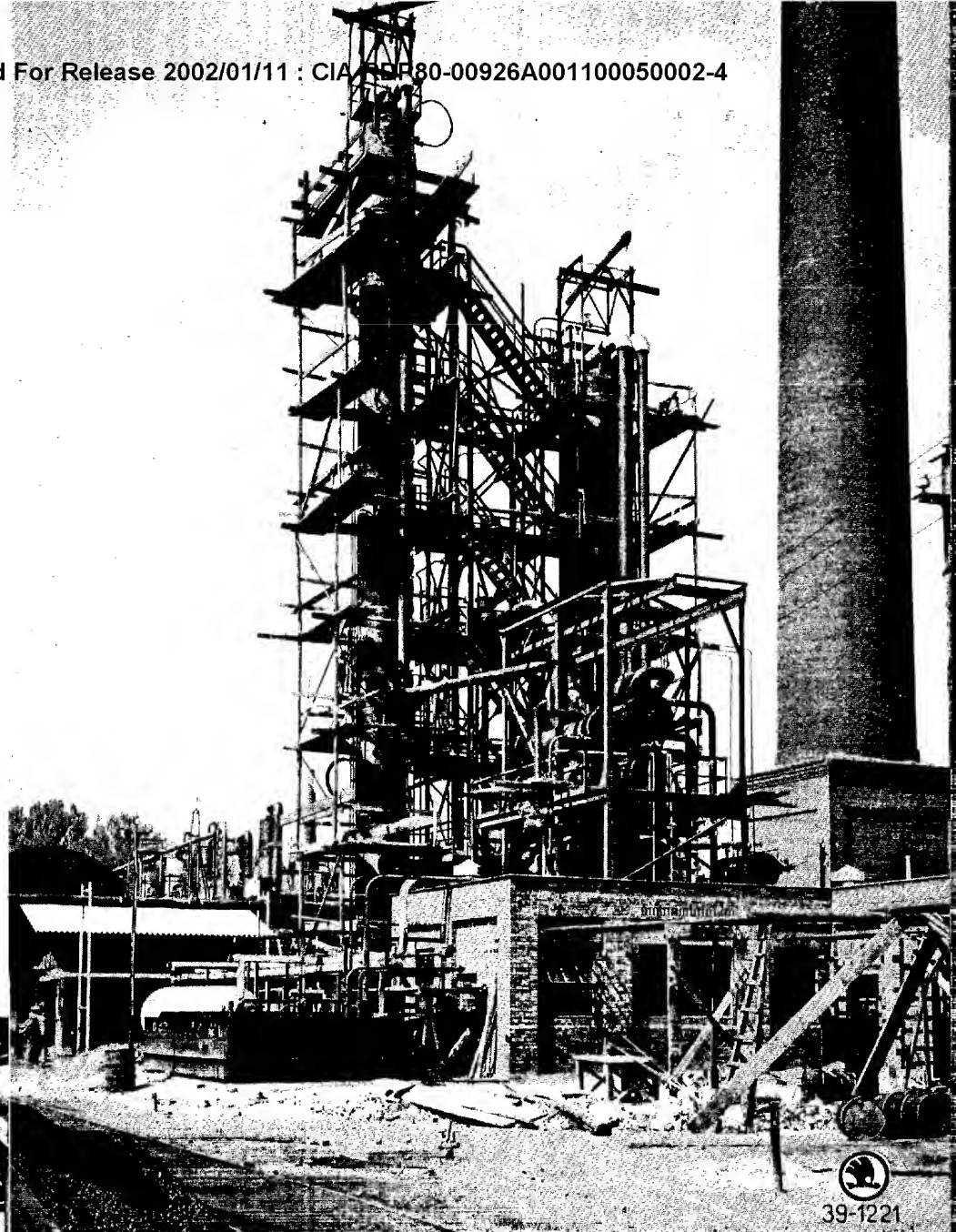


Welded fractionating column for a pipe-still

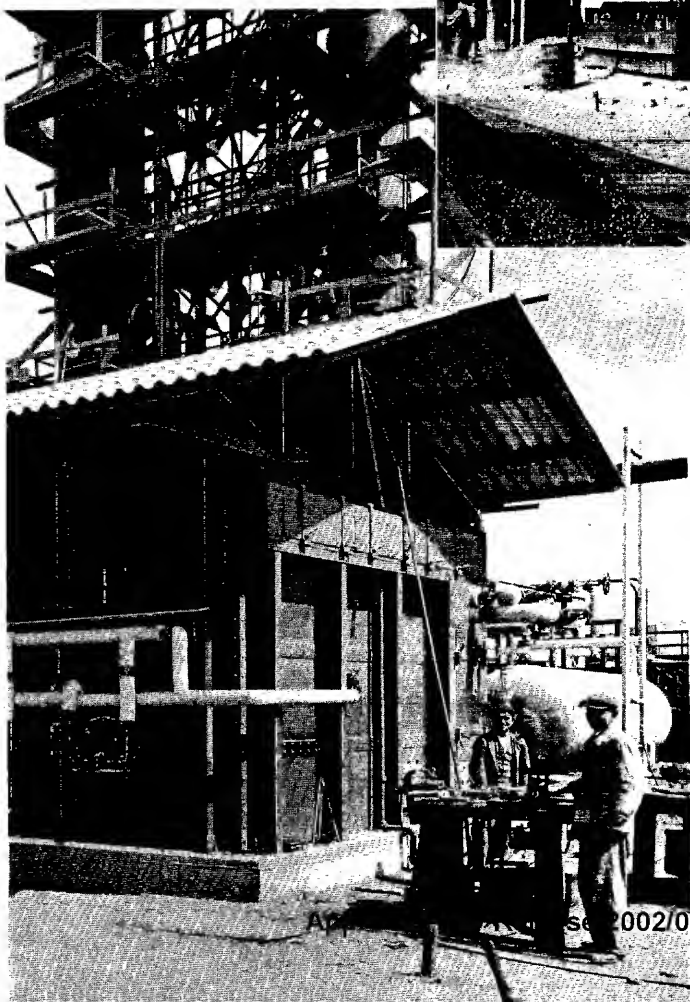


Heater and coking chamber of a "Dubbs" plant

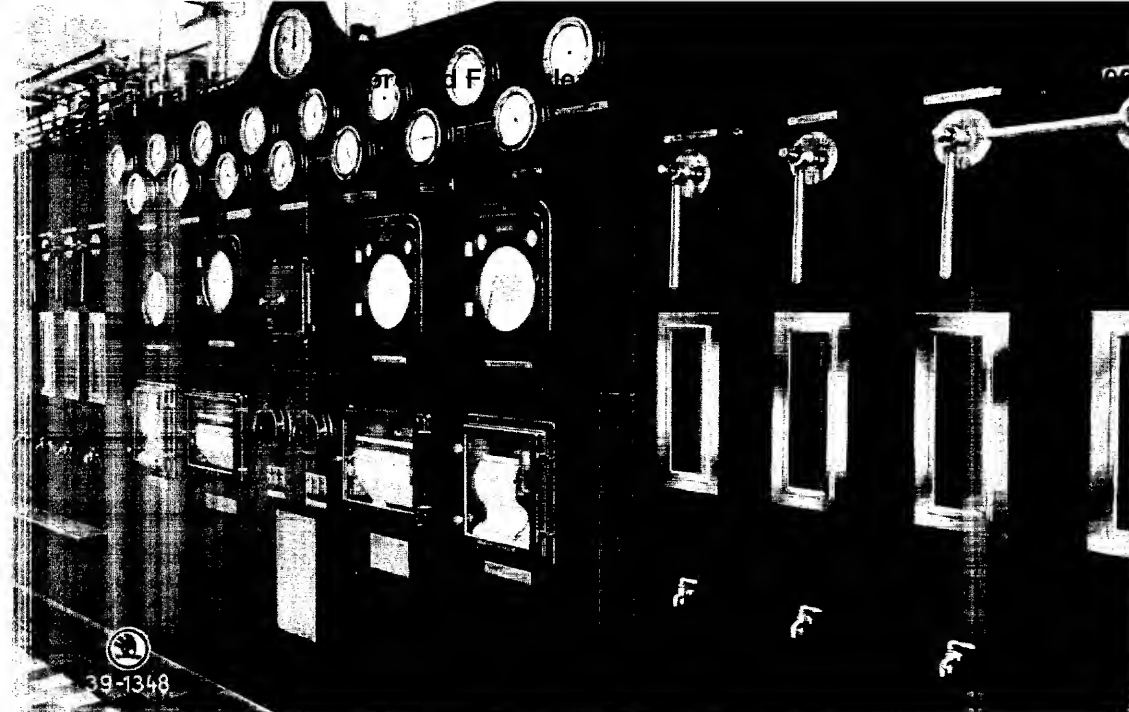




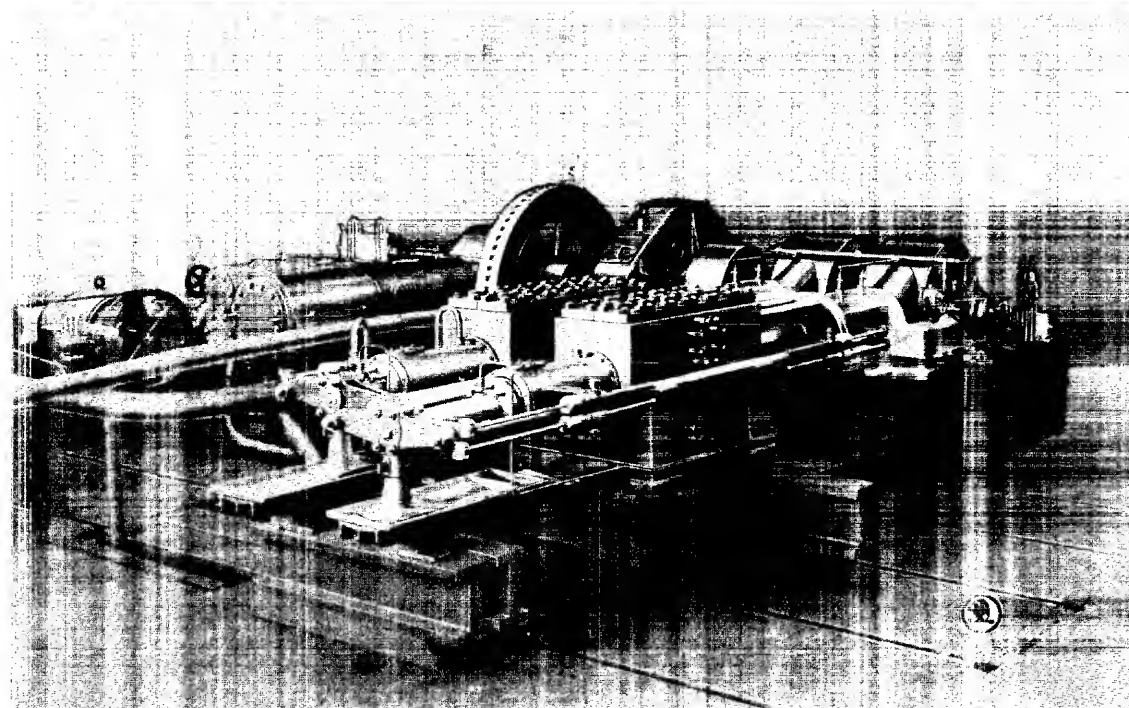
Combined pipe-still unit during erection



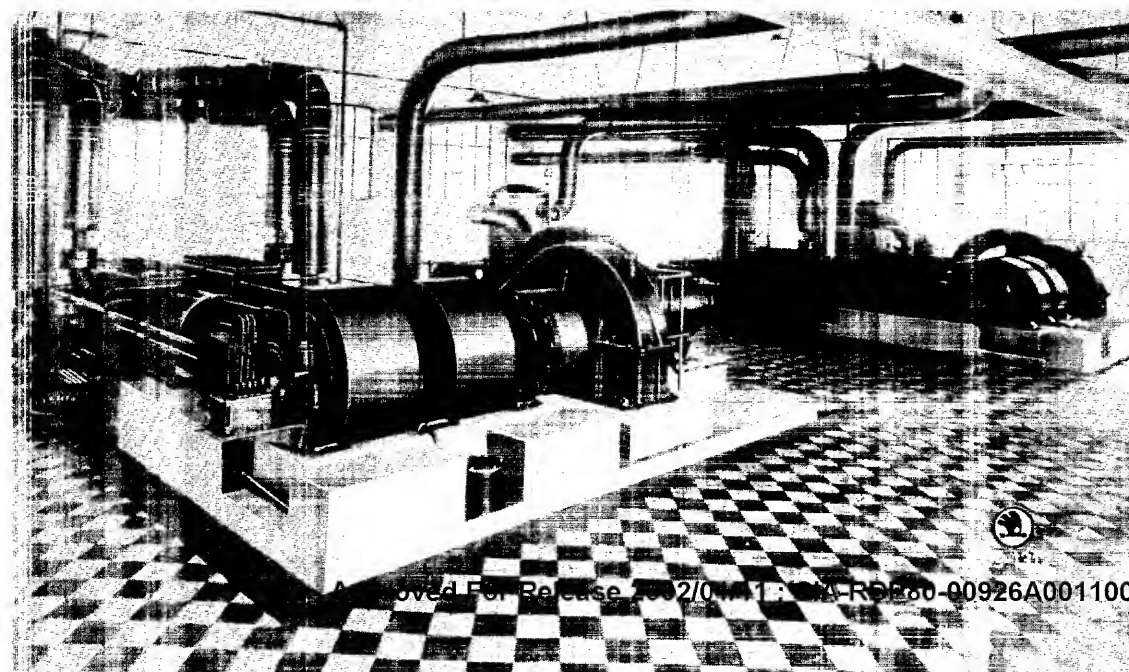
Heaters for a combined pipe-still unit



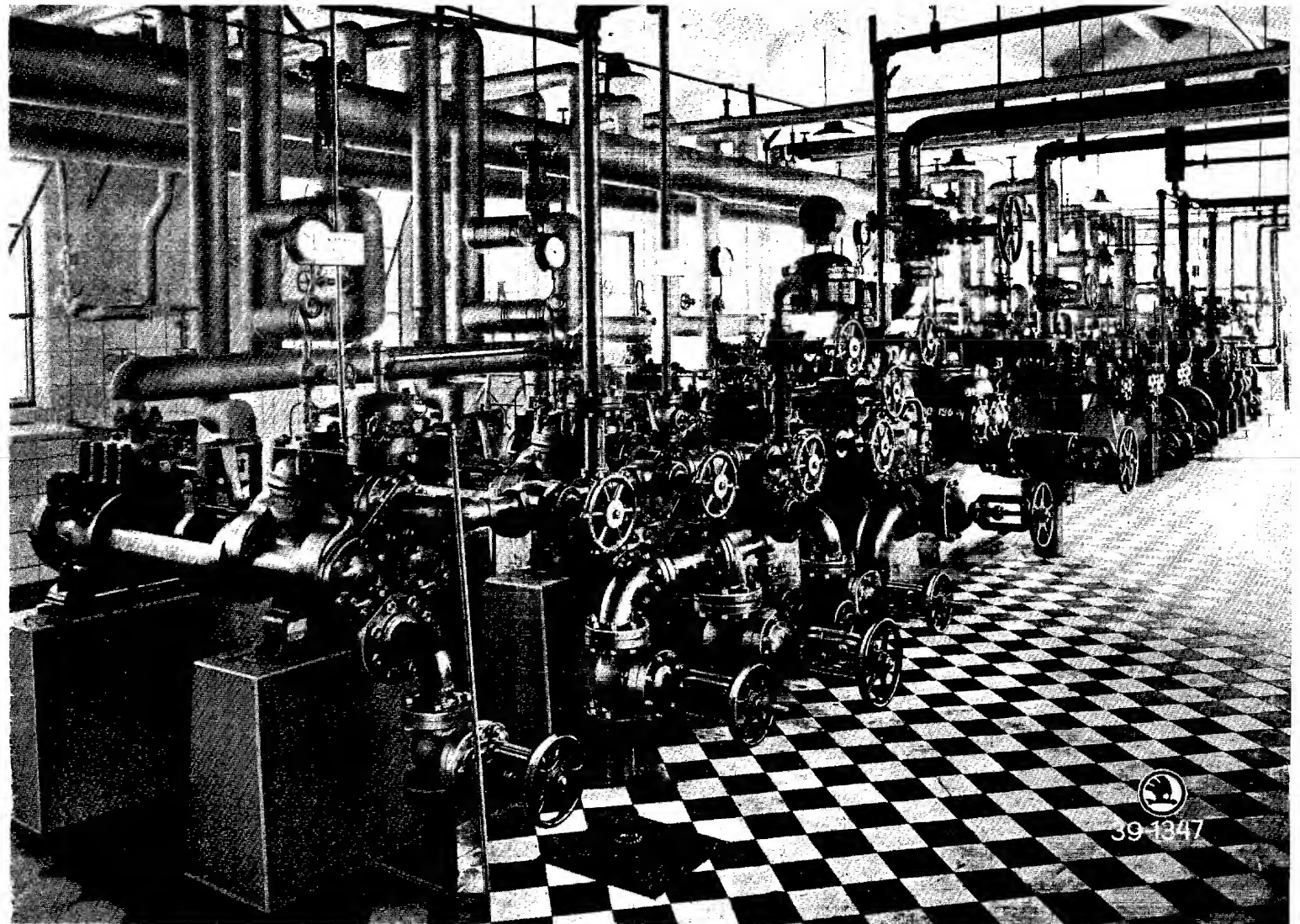
Control instrument board
of a pipe-still



Hot oil high-pressure
pump in a cracking
plant"




Hot oil high-pressure
pumps in a cracking plant



Group of oil pumps in a cracking plant

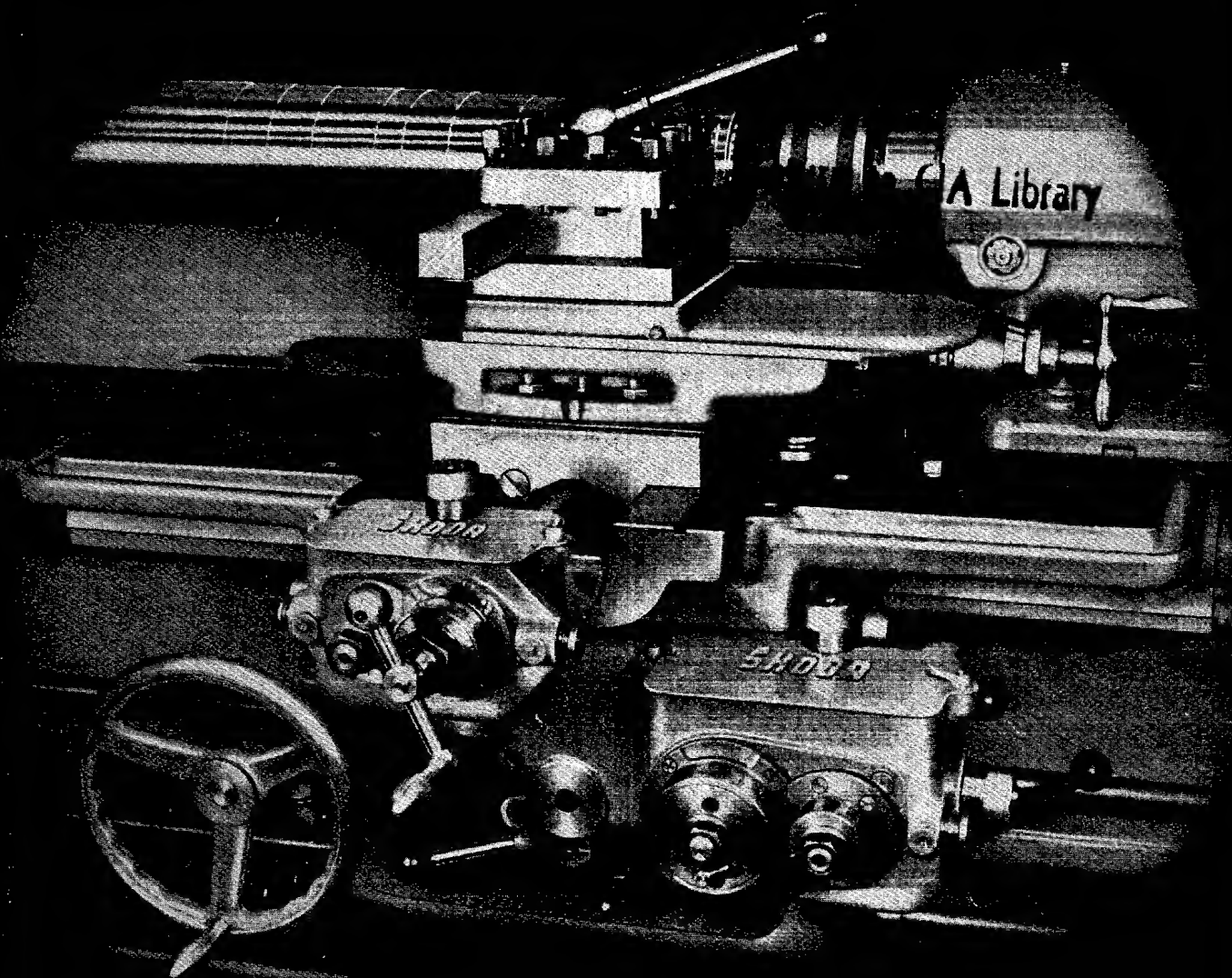
The Škoda Works manufacture all kinds of reciprocating and rotating pumps of approved designs provided with special fittings for all sorts of liquids used in the oil industry; namely high-pressure pumps of special design for heavy and light hot oil intended for cracking equipments.



**ŠKODA WORKS LTD., PLZEŇ;
HEAD OFFICE PRAGUE, BOHEMIA**



ŠKODA



Ref. No. 460.127

*... a small supplement to the lathes however of
extreme importance for turning, guaranteeing
the desired accuracy of work and raising
the efficiency of the lathe by 100% up to 300% ...*

25X1A

AUTOMATIC FEED RELEASING BOXES

Approved for page 24024/111 CIA RPP-00/26,00-110050002

Automatic Feed Releasing Boxes

A revolution in turning has been caused by the invention of Automatic Feed Releasing Boxes first used on the Škoda Sliding Surfacing and Screw Cutting Lathes type SUR which are already known by their great power capacity and first class performance.

The Automatic Feed Releasing Boxes may raise considerably the efficiency of various machines. They can be attached also in addition to all SUR-Lathes already supplied by Škoda Works.

MAIN QUALITIES

- The efficiency of the lathes is raised by 100% and even more.
 - The accuracy limits of hundredths mm may be easily kept.
 - The duplicate pieces manufactured in repetition work are more accurate compared with those machined in normal way as well as regarding comparison of one to the other.
 - Accurate turning and feed releasing without measuring.
 - Accurate measuring of longer distances on work piece and keeping of accuracy limits has given much trouble up to now. The feed releasing boxes make it an easy operation.
 - Thanks to the feed releasing boxes all machined parts are very accurate so that the usual additional works at final mounting are superfluous.
 - The feed is released smoothly because both releasing boxes are actuated by the releasing mechanism of the apron which releases by running against a positive stop, however under comparatively low pressure.
 - The attachment changes a universal lathe into a production lathe with an automatic release of feed in 1 to 12 adjustable positions.
 - The attachment is equally advantageous as for turning between centers as for the chuck work.
 - The non-productive times are considerably reduced which proves especially advantageous when turning by means of carbide tipped tools.
- The feed releasing boxes enable also to an unskilled operator a successful work on the machine. The attachment further enables — when machining large work pieces — one turner to work simultaneously on 2 lathes. In spite of it this work is not so tiresome for him as the work on only one machine without feed releasing boxes. (The efficiency is raised in this way by about 300%.)
- The feed releasing boxes memorize the measured distances and attend the work, relieving thus considerably the operator in his work.
- Any of the 12 stops for automatic release of the longitudinal or cross feed may be quickly adjusted so that the use of the attachment is economical also in case of machining the very complicated and accurate work and this even when turning just only one piece.

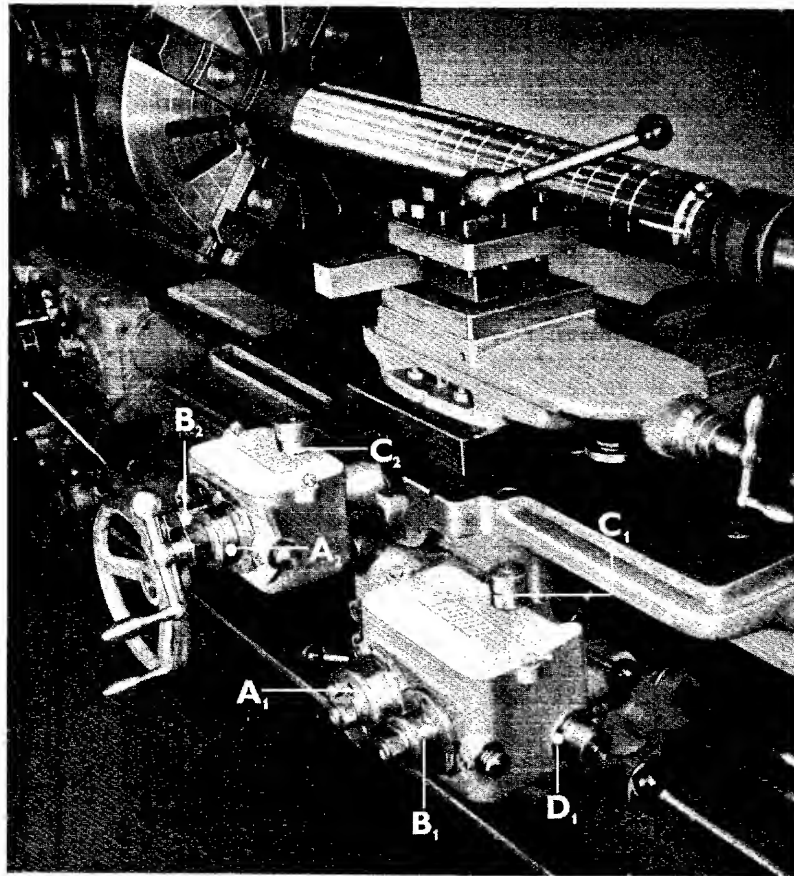
HOW THE FEED HAS BEEN RELEASED TILL NOW...

The length limits of the work piece could be measured and kept only with considerable effort. The operator had to hold the gauge above the work lest he should miss the right moment for releasing of the feed. As a rule he released the feed too soon and then, under a constant control of the work, engaging and disengaging the feed, he went on turning, taking chip after chip, kept on comparing the distance already machined with that on the gauge until he at last reached the desired length or sometimes also happened to excess it. The modern machine tools are usually fitted with one stop only. Multiple feed release is produced by successive inserting of accurately machined bars between the carriage and the stop. This is, however, disadvantageous, a special bar being necessary for each distance on the work piece to be machined and, moreover, there is always the danger of production of waste due to the fact that a false bar may be inserted. The same disadvantages occur when using the cross feed stops.

For the control of the length and diameter to be turned The Škoda Works supply since 1938 as a special equipment to Škoda Lathes type SUR special Double Scales with make it possible to read the distance covered by the tool from the zero position adjusted on the scale. This attachment itself cannot, of course, limit the carriage travel.

HOW THE FEED WILL BE RELEASED FROM NOW?

No doubt, every expert will see the great advantage of Automatic Feed Releasing Boxes (for longitudinal and cross feed). The boxes are thoroughly closed units and can be attached as to the new lathes as to the already supplied lathes Škoda SUR 260, SUR 300, SUR 350 and SUR 400 beginning from machine No. OB 10742. Each box includes a group of **12 independent stops**, either for limiting the longitudinal feed (automatic longitudinal feed releasing box) or for limiting the cross feed (automatic cross feed releasing box). On each box there are two adjustable scales one of which is fitted with a vernier. On this scales the operator may read the distance covered by the tool.



- A₁ longitudinal feed fine scale,
- B₁ longitudinal feed total scale,
- C₁ index dial for the choice of longitudinal feed stop,
- D₁ index dial for the choice at setting up,
- A₂ cross feed fine scale,
- B₂ cross feed total scale,
- C₂ index dial for the choice of cross feed stop.

The first scale A gives the hundredths of mm, the second scale B gives the total distance covered by the tool. The stops are to be adjusted according to the scales A_1 , B_1 or A_2 , B_2 , respectively, and not perhaps according to the work piece. This means that already the first work piece will be machined accurately within the accuracy limits, so that it is advantageous to apply the releasing boxes even when machining one piece only. Both boxes are rendering a thoroughly reliable work and are quite safe in operation. At any moment the feed can be reliably released accurately in the beforehand adjusted place wherever it may be within the compass of longitudinal turning or facing. The adjustment of the stops proceeds in a simple way and takes less time than to measure the work piece (all 12 pairs of stops may be adjusted in about 15 minutes).

The accuracy limits are kept better than it was possible in the normal way: The cross stops are releasing the feed with $\pm 0,01$ mm accuracy limit, the longitudinal stops with $\pm 0,02$ mm accuracy limit between the individual stops and both boxes with $\pm 0,01$ mm accuracy limit regarding the comparison of one work piece to the other.

The choice of the individual stop, which has to functionate at the actually nearest release of the feed in question is carried through by turning the upper index dial C_1 or C_2 , respectively, upon the number 1 to 12 corresponding with the same number marked on the stop. The purpose of this is to gain the control, because the stops are to be adjusted in such a way that the number of the respective stop for limiting a certain diameter on the work piece shall correspond always with the number of longitudinal stop which shall have to limit the length of turning referring to the just adjusted diameter.

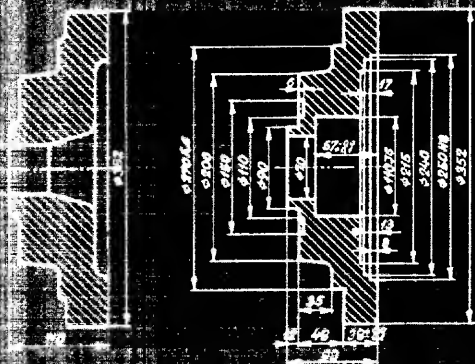
EXAMPLES OF WORK

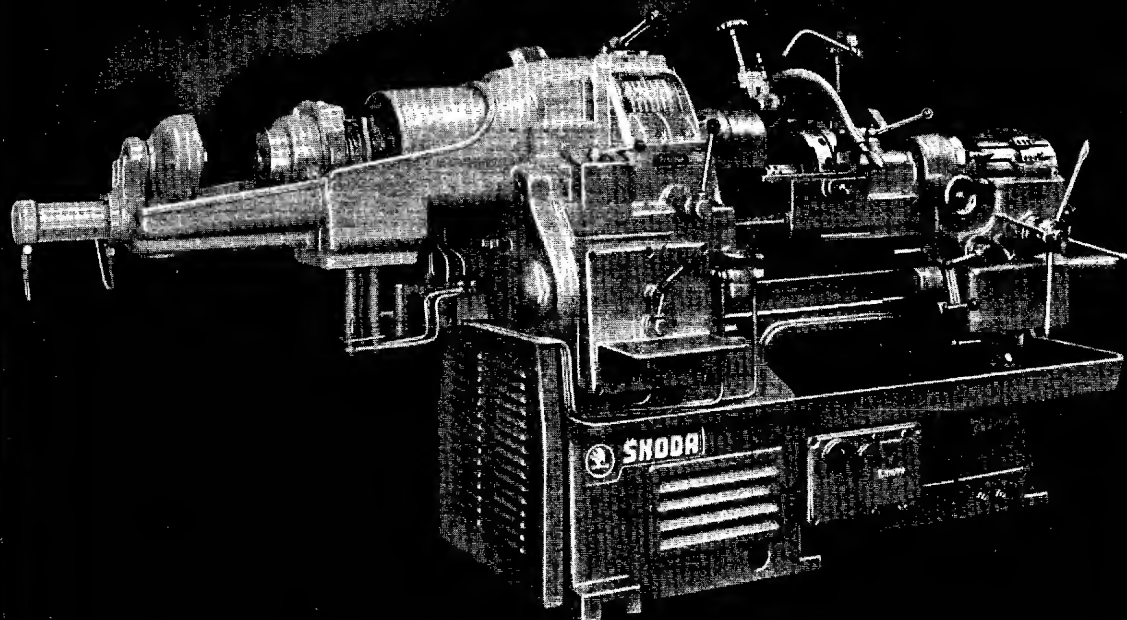
Example 1. Cast iron

Weight of the casting 43 kg
Weight of the machined work piece 31,5 kg
Total machining time (floor to floor):
without feed releasing boxes 112 minutes
with feed releasing boxes (12 pairs of stops in action) 44 minutes
Efficiency raised by 153%

1. Flange. Material: Cast iron.

Weight of the casting 43 kg
Weight of the machined work piece 31,5 kg
Total machining time (floor to floor):
without feed releasing boxes 112 minutes
with feed releasing boxes (12 pairs of stops in action) 44 minutes
Efficiency raised by 153%





Return to CIA Library

MAIN DIMENSIONS:

Capacities:	Max. diameter held:	metric	english
	for bar work	58 mm	2.1/4"
	for chuck work	170—290* mm	6.11/16—11.7/16"
	*) for works where few tools are needed		
	Max. swing over bed (without chasing device) . . .	550 mm	21.5/8"
Turret head:	Number × boring of tool holes	7×30 mm	7×1.3/16"
		7×45 mm	7×1.3/4"
	(long hole, combined)	2×50 mm	2×2"
	Max. travel of turret	610 mm	24"
Spindle speeds:	70 speeds (forward and backward) divided in 7 speed bands adjustable by means of change gears supplied as standard equipment:		
	I. speed band (10 speeds) r. p. m.	18—	400
	II. speed band (10 speeds) r. p. m.	22—	500
	III. speed band (10 speeds) r. p. m.	28—	630
	IV. speed band (10 speeds) r. p. m.	35—	800
	V. speed band (10 speeds) r. p. m.	45—	1000
	VI. speed band (10 speeds) r. p. m.	56—	1250
	VII. speed band (10 speeds) r. p. m.	71—	1600
Feeds:	9 longitudinal feeds	0,056—0,90 mm/rev. .002—.036 in/rev.	
	9 facing feeds	0,028—0,45 mm/rev. .001—.018 in/rev.	
Driving motor (3-pole reversible):			
	Nominal rating kW	10,5—7—4,3	
Floor space required		3400×1010 mm	11'2"×3'4"
Weight of the machine with standard equipment		2600 kg	5730 lb

TURRET LATHES ŠKODA R 60

The Turret Lathes ŠKODA R 60 have been designed for economic utilization of carbide tipped tools. This, together with an easy control, as for instance air-operated bar feed and chucking, makes this machines by 100% on an average more efficient than the formerly built turret lathes Škoda RP 62. The machining times attained with these turret lathes only amount to a fraction of the times hitherto customary. Besides their large efficiency these machines are very accurate and safe in operation.

Standard equipment (supplied with the machine and included in its price):

- Electric drive equipment (3 step reversible motor and cooling pump motor together with operating and protection switches). State voltage and sort of current when placing the order.
- Coolant equipment (electrically driven centrifugal pump with piping).
- Air cylinder with supports, air control-cock and pipeline inside the machine (for compressed air of 5—6 atm.).
- Change gears for adjustment of the required speed band (5 pairs for R 60).
- 3 facing stops (1 central and 2 lateral).
- 3 guards (1 against splash and 2 against chips).
- 1 set machine wrenches and spanners.
- 6 operating charts attached to the machine.
- Operator's handbook (covering instructions for erection, operation and maintenance).

Extras (supplied on explicate order at an extra charge):

- I Air chuck for bar work (incl. 1 \times jaws *71058).
- II Air chuck for insertion work (incl. 1 \times jaws *77300).
- III Air-operated 3-jaw chuck (incl. 3 \times jaws 78163, further 3 \times 78263 and 3 \times 79163).
- IV Air-operated 2-jaw chuck (incl. 2 \times jaws 81063).
- V Air control valve with pressure gauge (necessary only when machining thin-walled work).
- VI Pneumatic stock feed attachment (incl. jaws *74658).
- VII Compressor for producing compressed air.
- VIII Chasing device.
- IX Swinging arm for die heads (only in supplement to pos. VIII).
- X Plunge cut attachment.
- XI Knurling device (supplied as a supplement to pos. X).
- XII Longitudinal copying device.
- XIII Transverse copying device.
- XIV Longitudinal feed stop, drum type.
- XV Longitudinal hinged stop.
- XVI Further facing stops (see special tool catalogue).
- XVII Further turret head.

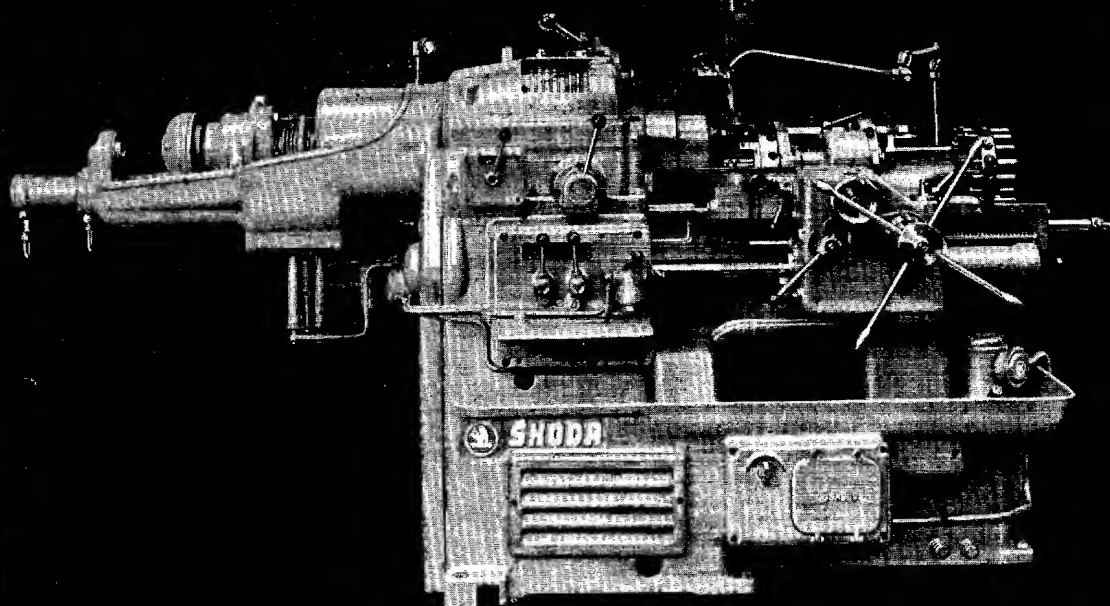
Standard sets of tools:

- XVIIIIR Cutting and chucking tools for turret head.
- XVIIISa Chucking tools for air chuck I and stock feed attachment VI.
- XVIIISb Chucking tools for air chuck II.
- XX Individual chucking and cutting tools (see special tool catalogue).
- XXI Electric lamp to the machine.
- XXII Tooling method for the desired type of work (will be drawn up on account of the filled out questionnaire which kindly apply for).

*) If not otherwise desired.

Dimensions, weights and illustrations are not binding in details.

**ŠKODA WORKS, PLEŠŤ,
HEAD OFFICE PRAGUE, CZECHOSLOVAKIA**



MAIN DIMENSIONS:

Capacities:	Max. diameter held:	metric	english
	for bar work	34 mm	1.5/16"
	for chuck work	110—180* mm	4.5/16—7.1/16"*
	*) for works where few tools are needed		
	Max. swing over bed (without chasing device) . . .	360 mm	14.3/16"
Turret head:	Number × boring of tool holes	7 × 20 mm	7 × 3/4"
		7 × 30 mm	7 × 1.3/16"
	(long hole, combined)	2 × 35 mm	2 × 1.3/8"
	Max. travel of turret	410 mm	16.1/8"
Spindle speeds:	50 speeds (forward and backward) divided in 5 speed bands adjustable by means of change gears supplied as standard equipment:		
	I. speed band (10 speeds) r. p. m.	56—1250	
	II. speed band (10 speeds) r. p. m.	71—1600	
	III. speed band (10 speeds) r. p. m.	90—2000	
	IV. speed band (10 speeds) r. p. m.	125—2500	
	V. speed band (10 speeds) r. p. m.	140—3150	
Feeds:	6 longitudinal feeds	0,056—0,56 mm/rev.	.002—.02 in/rev.
	6 facing feeds	0,028—0,28 mm/rev.	.001—.01 in/rev.
Driving motor (3-pole reversible):			
	Nominal rating kW	5,5—4—2,6	
Floor space required		2550 × 850 mm	8'4" × 2'9 1/2"
Weight of the machine with standard equipment		1300 kg	2860 2b

TURRET LATHES ŠKODA R 36

The Turret Lathes ŠKODA R 36 have been designed for economic utilization of carbide tipped tools. This, together with an easy control, as for instance air-operated bar feed and chucking, makes this machines by 100% on an average more efficient than the formerly built turret lathes Škoda RP 36. The machining times attained with these turret lathes only amount to a fraction of the times hitherto customary. Besides their large efficiency these machines are very accurate and safe in operation.

Standard equipment (supplied with the machine and included in its price):

Electric drive equipment (3 step reversible motor and cooling pump motor together with operating and protection switches). State voltage and sort of current when placing the order.

Coolant equipment (electrically driven centrifugal pump with piping).

Air cylinder with supports, air control-cock and pipeline inside the machine (for compressed air of 5—6 atm. .

Change gears for adjustment of the required speed band (3 pairs for R 36).

3 facing stops (1 central and 2 lateral).

3 guards (1 against splash and 2 against chips).

1 set machine wrenches and spanners.

6 operating charts attached to the machine.

Operator's handbook (covering instructions for erection, operation and maintenance).

Extras (supplied on explicit order at an extra charge):

I Air chuck for bar work (incl. 1 x jaws *71134).

II Air chuck for insertion work (incl. 1 x jaws *77160).

III Air-operated 3-jaw chuck (incl. 3 x jaws 78102, further 3 x 78202 and 3 x 79102).

IV Air-operated 2-jaw chuck (incl. 2 x jaws 81002).

V Air control valve with pressure gauge (necessary only when machining thin-walled work).

VI Pneumatic stock feed attachment (incl. jaws *74134).

VII Compressor for producing compressed air.

VIII Chasing device.

IX Swinging arm for die heads (only in supplement to pos. VIII).

X Plunge cut attachment.

XI Knurling device (supplied as a supplement to pos. X).

XII Longitudinal copying device.

XIII Transverse copying device.

XIV Longitudinal feed stop, drum type.

XV Longitudinal hinged stop.

XVI Further facing stops (see special tool catalogue).

XVII Further turret head.

Standard sets of tools:

XVIII Cutting and chucking tools for turret head.

XVIIIa Chucking tools for air chuck I and stock feed attachment VI.

XVIIIb Chucking tools for air chuck II.

XX Individual chucking and cutting tools (see special tool catalogue).

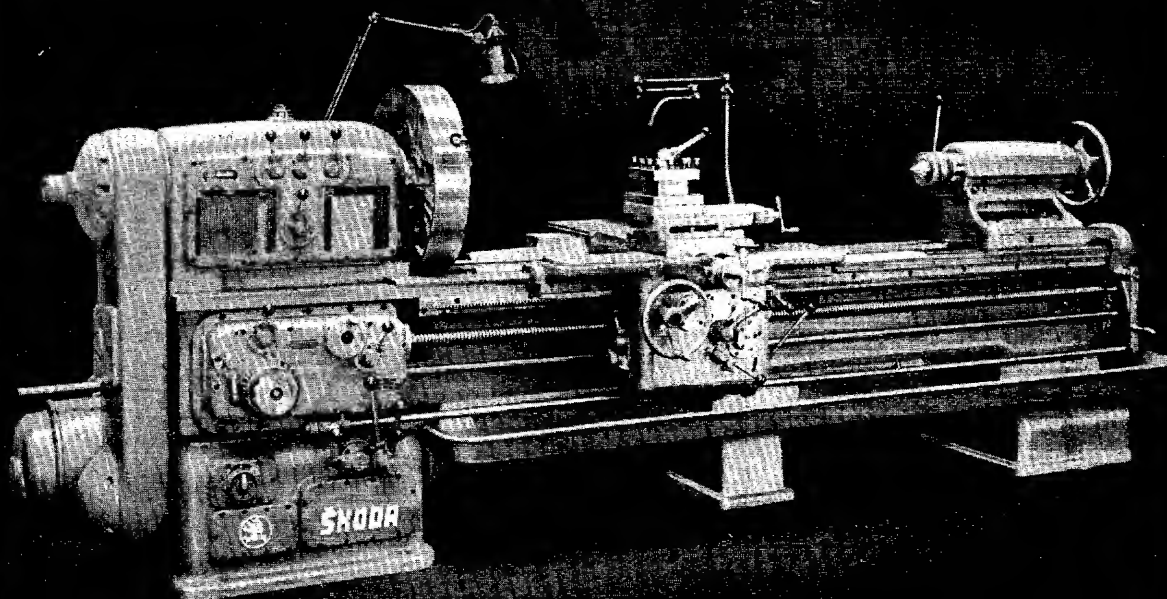
XXI Electric lamp to the machine.

XXII Tooling method for the desired type of work (will be drawn up on account of the filled out questionnaire which kindly apply for).

*) If not otherwise desired.

Dimensions, weights and illustrations are not binding in details.

**ŠKODA WORKS, PŘEZDŮB;
HEAD OFFICE PRAGUE, CZECHOSLOVAKIA**



MAIN DIMENSIONS

		metric	english
Capacities:	Height of centers over bed	350 mm	13.13/16"
	Swing over bed:		
	up to 300 mm (11.13/16") distance from spindle nose . .	830 mm	32.11/16"
	over this distance	740 mm	29.1/8"
	Swing over saddle: without rear tool post	440 mm	17.5/16"
	with rear tool post	310 mm	12.3/16"
	Face plate 720 mm (28.3/8") dia., chucking Ø	75—665 mm	2.15/16"—26.3/16"
	Max. tool profile	40×40 mm	1.9/16"×1.9/16"
Spindle:	Hole through spindle	50 mm	2"
	Taper in spindle metr.	70	
	Taper in reducing sleeve Morse No.	5	
	Number of speeds	32	
	Speed range: forward-normal r. p. m.	7.4—950	
	on request (extra charge) r. p. m.	5.7—740	
	reverse	1.25× forw. motion	
Normal feed:	88 longitudinal feeds in the range of	0.01—2.5 mm/rev.	.004—.1 in. rev.
	88 cross feeds in the range of	0.45×longit. feed	
Threads:	110 metric threads in the range of mm	0.2—120	
	99 Whitworth threads in the range of t. p. i.	1/4—120	
	88 module threads Module	0.125—30	
	77 threads Diametral Pitch threads Ø1"	1.7/8—64	
	99 threads Circular Pitch in	1.128—3.34	
Lead screw pitch		12 mm	1/2"
Taper turning attachment: Max. length of taper		700 mm	27.9/16"
	Max. angle adjustable on each side	10°	
Copying attachment: Max. length of guiding template (edge)		700 mm	27.9/16"
	Max. cross traverse	100 mm	4"
	Radius of follower-roller	35 mm	1.3/8"
Motor output (normal) kW		6 or 16	
Floor space required at 1500 mm (4'11") turning length.		3.7×1.55 m	12'2"×5'1"

SLIDING, SURFACING AND
SCREW CUTTING LATHES

ŠKODA SUR 350

The Lathes ŠKODA-SUR 350 are especially suitable for economic turning by means of carbide tipped tools. They are very efficient machines, meeting all up-to-date demands, safe in operation and retaining lasting accuracy. The machines are provided with adequate high speeds for an economic utilisation of carbide tipped tools as well as with low speeds which are necessary for thread cutting with high speed tools. The motor output is very high in order to enable an economic performance of heavy cuts at roughing.

The lathes are usually manufactured with following distance between centers:

	mm	1500	2000	2500	3000	4000	5000	6000	7000	8000
	ft & in	4'11"	6'7"	8'2"	9'10"	13'2"	16'5"	19'8"	23	26'3"
weights	kg	5000	5300	5600	5900	6200	6500	6800	7100	7400
	lbs	11 000	11 700	12 400	13 000	13 700	14 400	15 000	15 600	16 300

Standard equipment (supplied with the machine and included in its price):

Electric drive equipment (2 motors, electrical control panel mounted in a detached box, controlling switch).
State voltage and sort of current when placing the order.
 Coolant equipment.
 Forced feed lubricating system.
 Square turret tool post.
 15 change gears (for cutting uncommon threads).
 Crank and pinion for displacing the tailstock along the vees.
 Four-jaw face plate.
 Arbor for mounting the face plate on the spindle nose.
 Driver plate.
 Center sleeve for the main spindle (taper metr. 70, Morse 5).
 Dead center for the main spindle.
 Live center for the tailstock sleeve.
 2 longitudinal stops for limiting the carriage travel.
 Supporting brackets of the lead screw and feed shaft (for machines with turning length from 3000 mm — 9'10" on).
 Set of machine wrenches.
 Speed chart, feed chart, thread chart and service charts (fixed on the machine).
 Operator's handbook.

Extras (supplied on explicit order at an extra charge):

- I Rear tool post.
- II Small steady rest (for \varnothing 25—250 mm, 1' —9.7/8").
- III Large steady rest (for \varnothing 250—470 mm, 9.7/8"—18.1 2").
- IV Follow rest (for \varnothing 20—200 mm, 13/16"—7.7 8").
- V Taper turning attachment.
- VI Copying attachment.
- VII Parts completing pos. V to enable also copying.
- VIII Parts completing pos. VI to enable also taper turning.
- IX Double scale for the longitudinal feed.
- X Double scale for the cross feed.
- XI Lever-actuated tailstock sleeve.
- XII Thread cutting indicator.
- XIII Box releasing the longitudinal feed.
- XIV Box releasing the cross feed.
- XV Spring-actuated tailstock sleeve (to compensate the work piece elongation at elevated temperature).
- XVI Magnetic oil filter (to be attached on the oil circuit).
- XVII Speed calculator.
- XVIII Electric lamp.
- XIX Air chuck (with air cylinder and armature for 6 atm.).

Special attachments to lathes SUR 350 will be designed and offered on request.

Dimensions and weights are not binding in details.

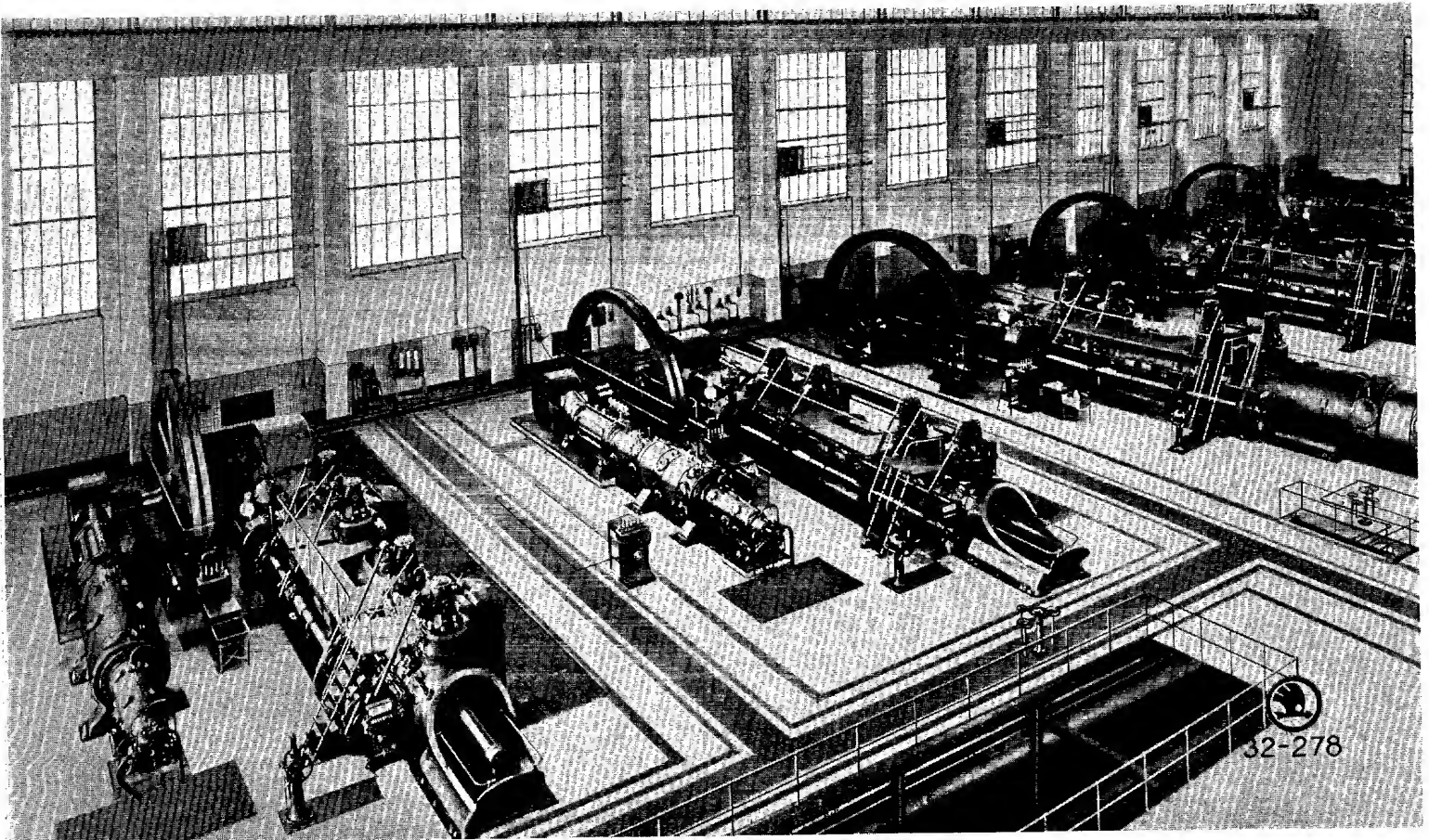
ŠKODA WORKS, P. L. C.,

HEAD OFFICE PRAGUE, CZECHOSLOVAKIA

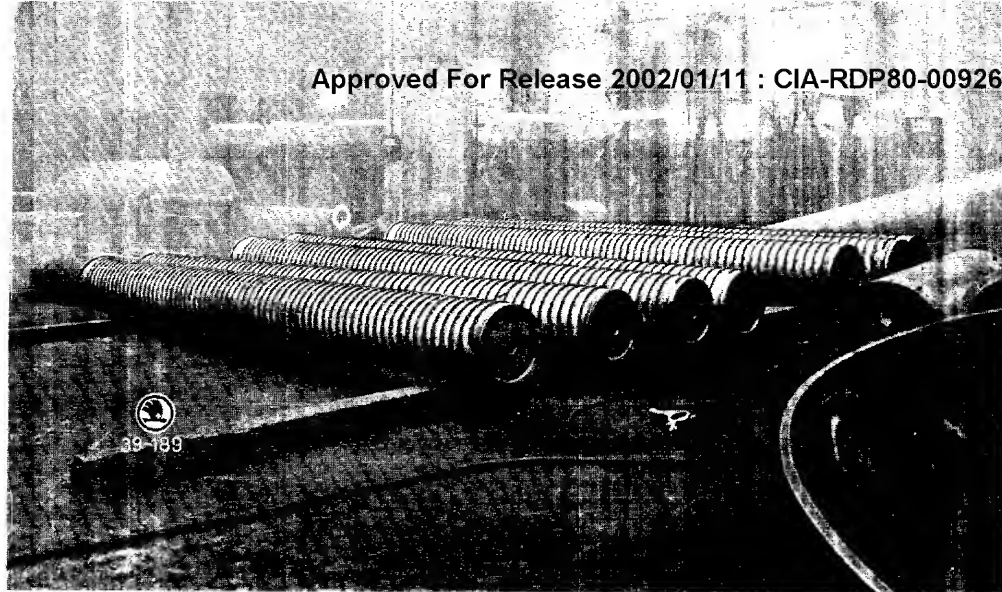


ARTIFICIAL
AMMONIA

For quite a number of years the Škoda Works have been suppliers of industries producing synthetic ammonia and nitrogen compounds. The Škoda Works deliver complete industrial plants as well as individual apparatus and their parts to this industrial branch. Specially the question of the manufacture of gas compounds necessary for obtaining hydrogen for synthetic purposes has been closely followed.



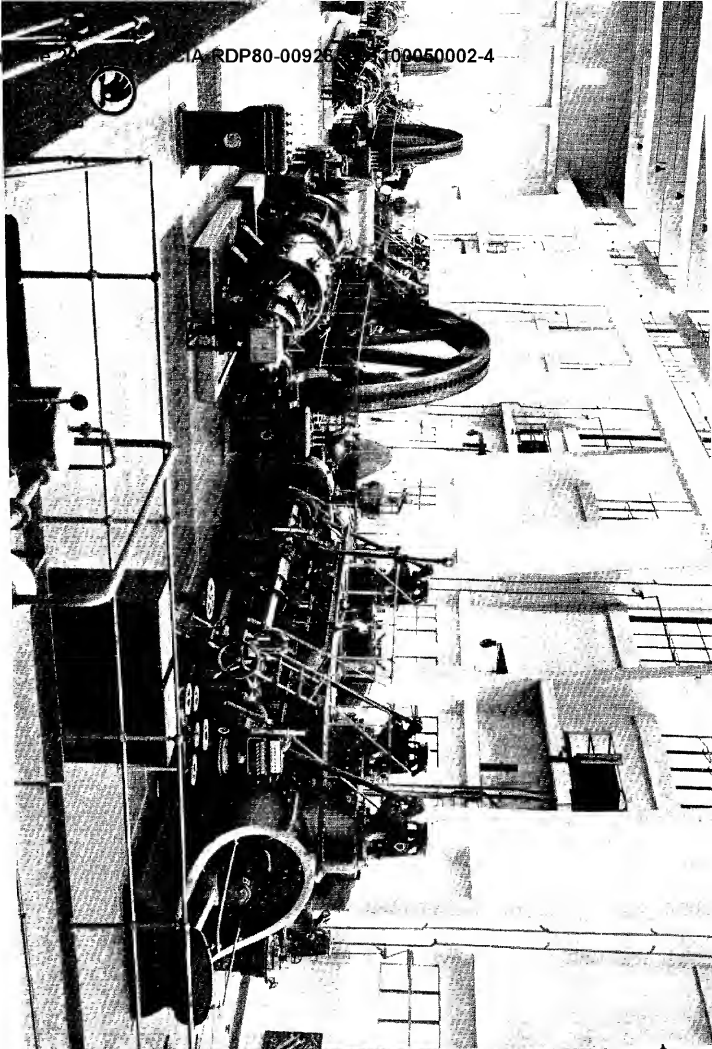
Two high-pressure five-stage compressors, pressure 3,000 lb./sq. in. (200 at.), output abt. 115,000 cu. ft./h. (3,300 m³/h.) each; four low-pressure compressors, pressure 100 lb./sq. in. (7 at.) abt. 600,000 cu.ft./h. (17,000 m³/h.) each. Driven by coke-gas engines.



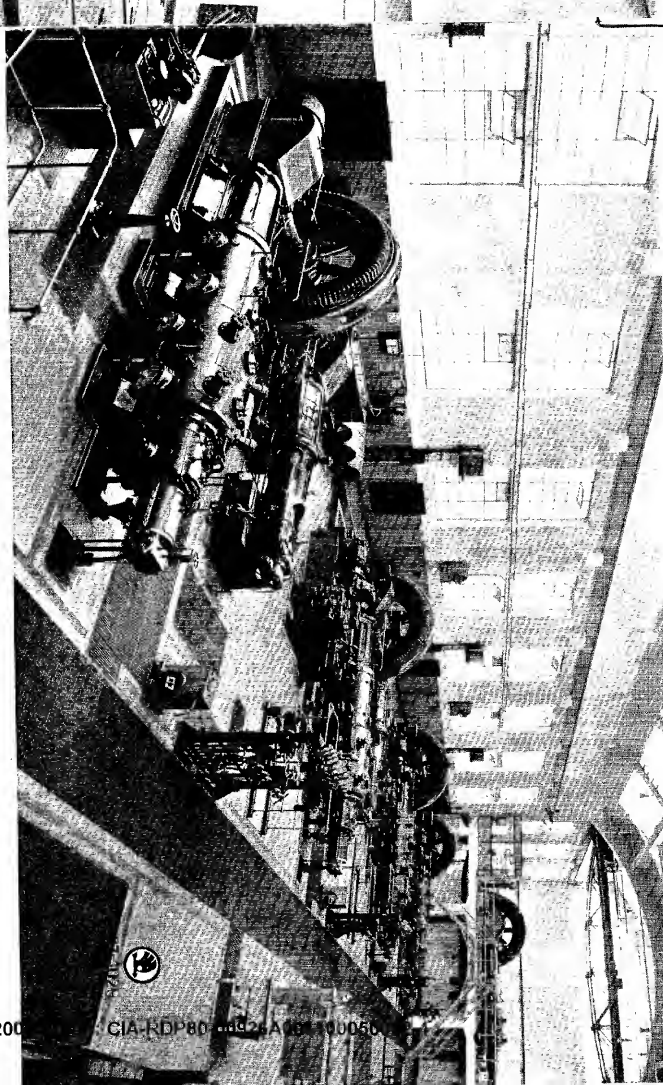
Various parts of
apparatus for ammonia
synthesis in the
Workshops.



Three high-pressure compressors for gas mixture, pressure 4,500 lb./sq. in. (300 at.), output 195,000 cu. ft./h. (5,500 m³/h.).



Their manufacturing programme comprises high-pressure pumps, apparatus made of special acid-resisting steel, all kinds of electric equipments and electric motors for compressor drive up to the highest capacities. Besides they construct all kinds of driving motors which may practically come into consideration in this industrial line, e. g. steam turbines and special turbines driven by nitrogenous gases, gas engines driven by waste gases, steam engines, Diesel engines, etc., etc. The Škoda Works are equipped with all the apparatus necessary for carrying out tests of high-pressure bodies, including X-ray tests of welds of the largest thicknesses.



Four compressors for N₂-H₂ output abt. 50,000 cu. ft./h. (1,400 m³/h.), each, and eq. for abt. 175,000 cu. ft./h. (5,000 m³/h.). Pressure abt. 14,200 lb./sq. in. (1,000 at.).

The following companies rank among the most prominent clients of the Škoda Works in the line of high-pressure synthesis: the Kühlmann concern Paris with its affiliated companies at La Madeleine, Lille, Chocques, Billy Montigny, Selzeate, Trilleur; Société Mosellane Merlebach, Ammonia Casale S. A. Roma, Staatsmijnen Limburg-Heerlen, Bohemian Synthetic Compound Works at Moravská Ostrava, United Chemical & Metallurgical Works Ltd. Prague, "Synthesia" Chemical Works Sentiin Bohemia, Polish State Nitrogen Works at Chorzów and Mościce, Chimiimport and Maschinimport Moscow, Societa Construzioni A. Brambilla Milano, Sumico Chemical Works Osaka.



from current and alloyed steels.

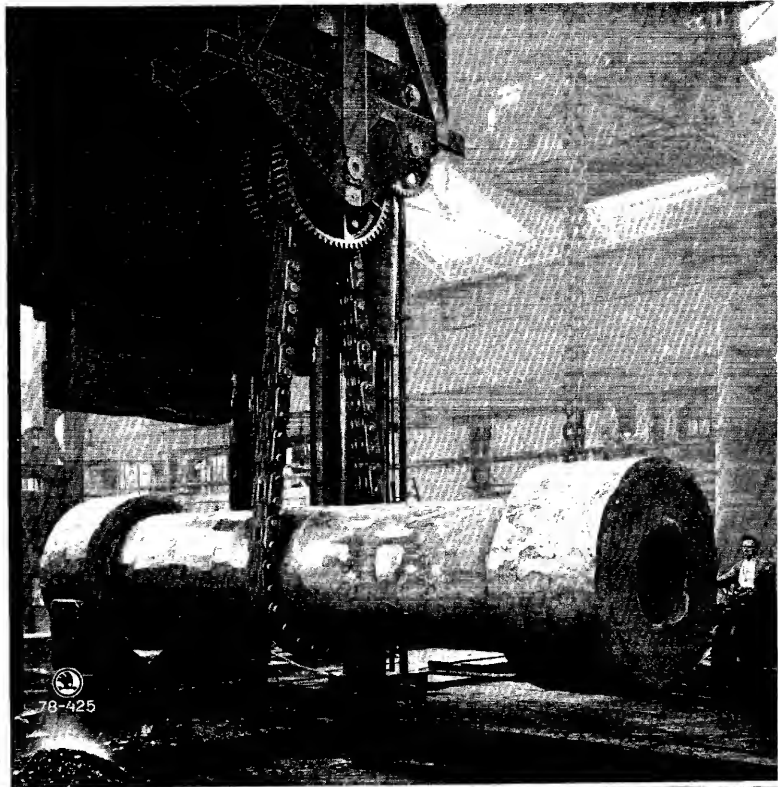
SYNTHETIC AMMONIA



ŠKODA WORKS LTD., PLZEŇ;

HEAD OFFICE PRAGUE, BOHEMIA

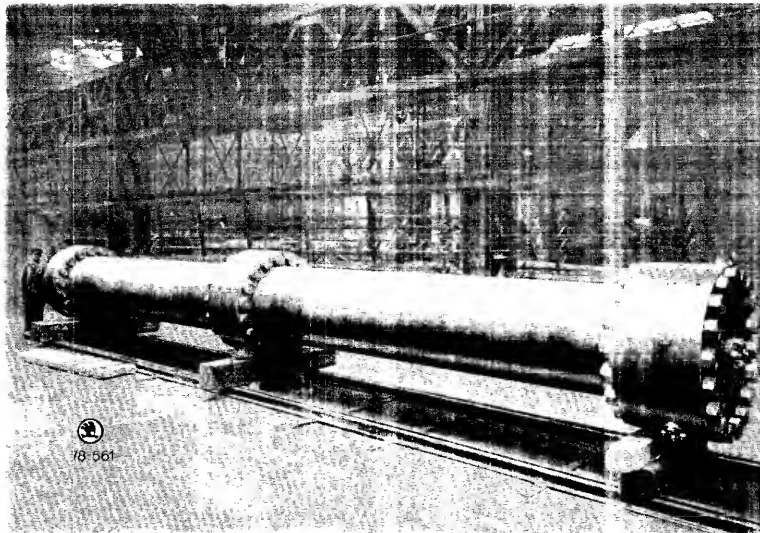
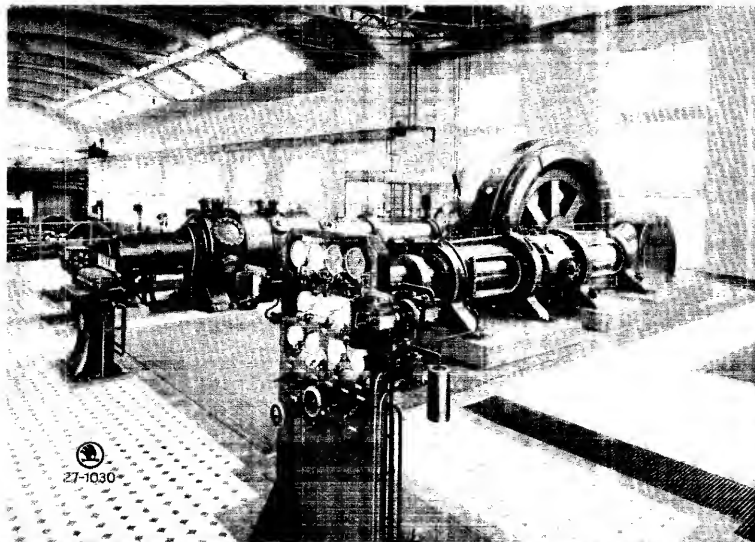
Rough-forged high-pressure vessel. Weight 50 tons.



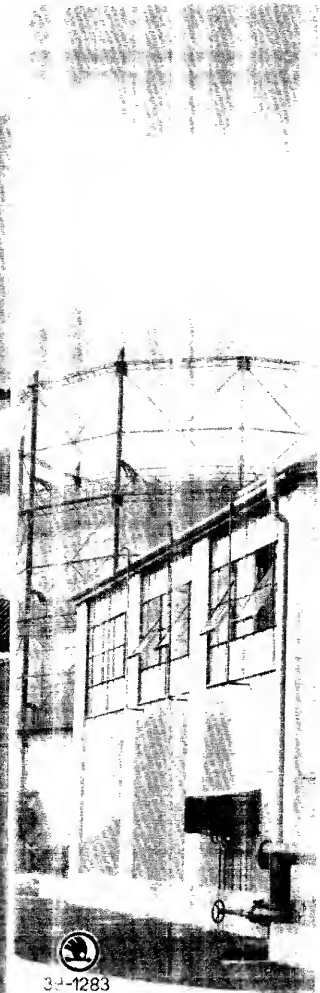
High-pressure vessel for synthetic ammonia production forged of open-hearth steel. Working pressure 1,700 lb./sq. in. (120 at.).



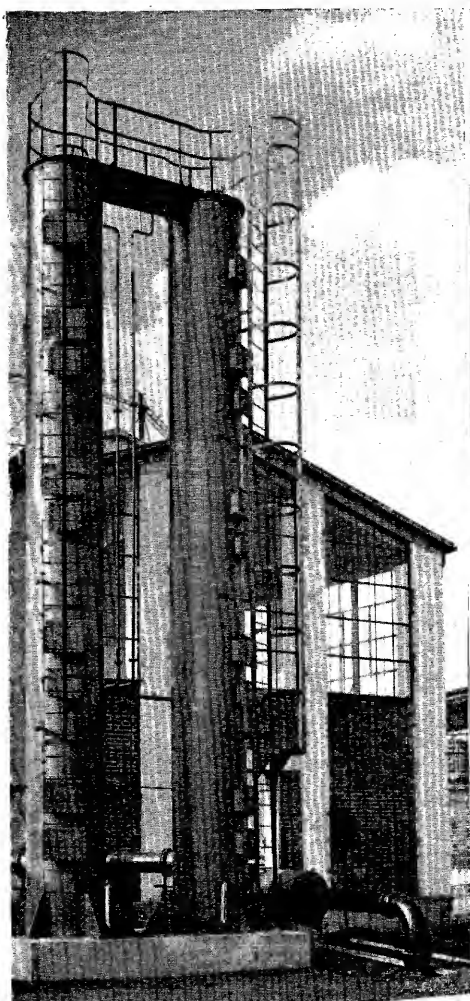
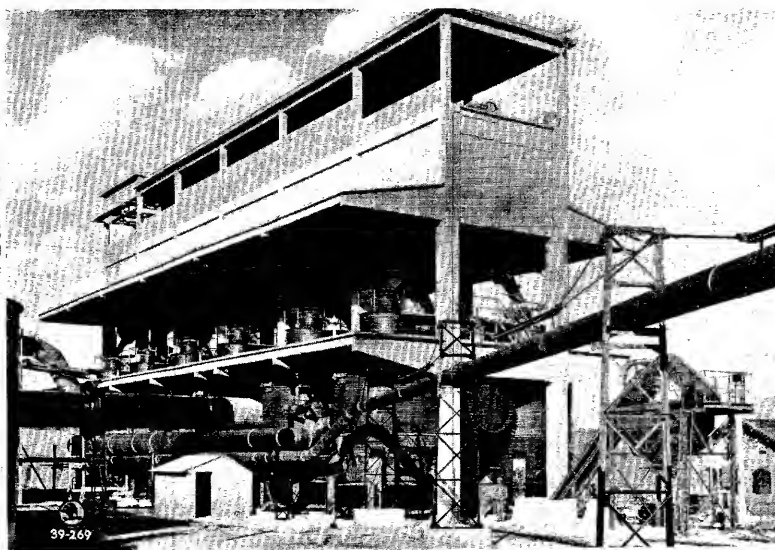
Seven-stage N₂-H₂ gas mixture super-compressor for ammonia synthesis. Output abt. 175 000 cu. ft. h. (5,000 m³ h.), pressure abt. 14,200 lb. sq. in. (1,000 at.).



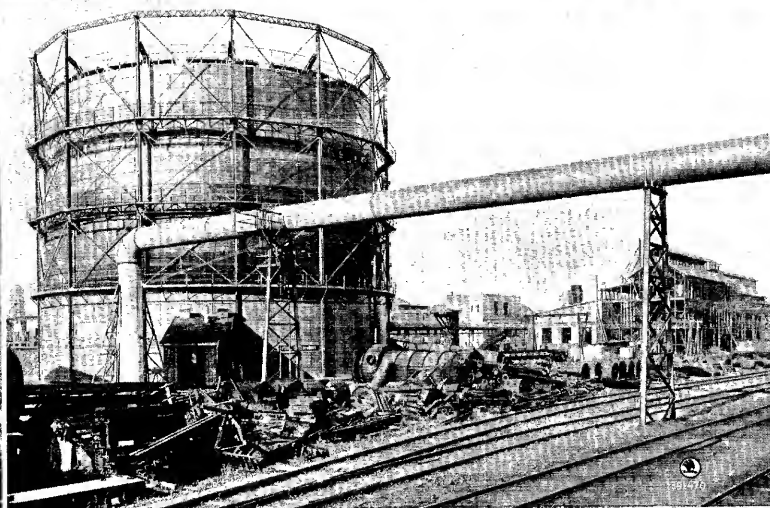
Cylindrical body for ammonia synthesis working pressure about 4,200 lb. sq. in. (300 at.)
total weight 95 tons.



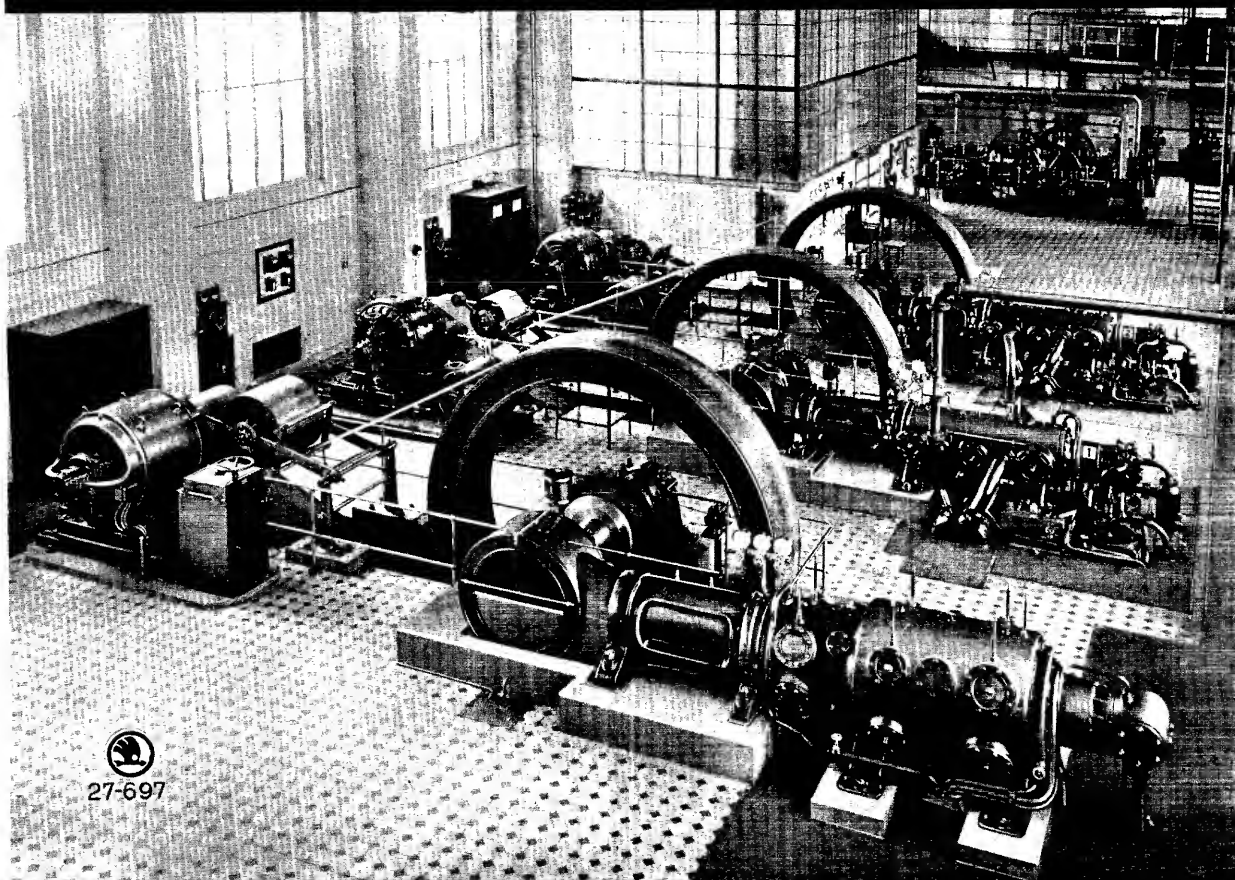
Station of gas generators.



Station of benzol gas washers. Washing capacity about 900,000 cu. ft./h. (25,000 m³/h.).



Two-telescope gasholder for about 700,000 cu. ft. (20,000 m³) with a water tank.



**ŠKODA WORKS LTD., PLZEŇ;
HEAD OFFICE PRAGUE, BOHEMIA**

FOURS INDUSTRIELS

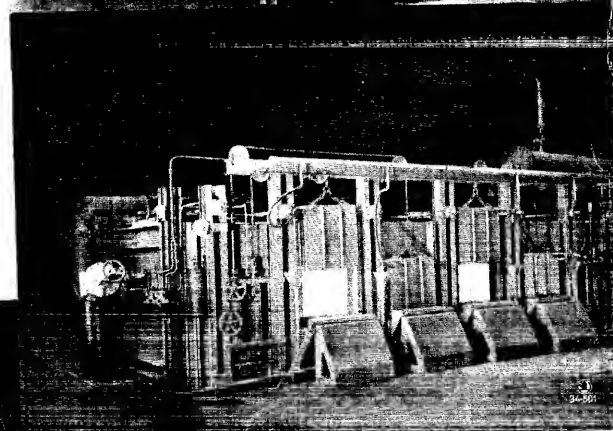
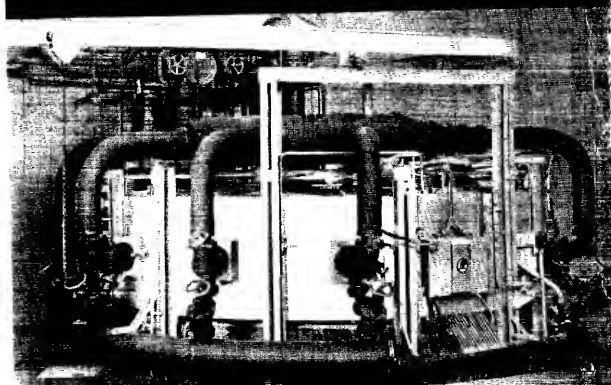
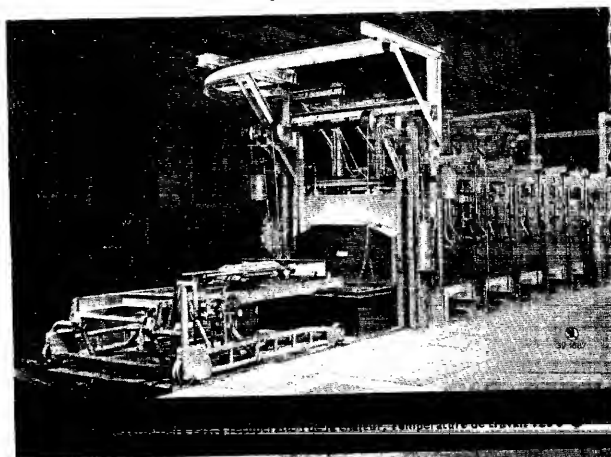
Four à gaz à sole mobile. Température de travail 1000° C

Dans les ateliers des Etablissements Škoda il y a un grand nombre de fours de tous les types, construits pour des buts divers. Ce sont des fours Škoda, construits à la base d'une expérience acquise au cours de longues années.

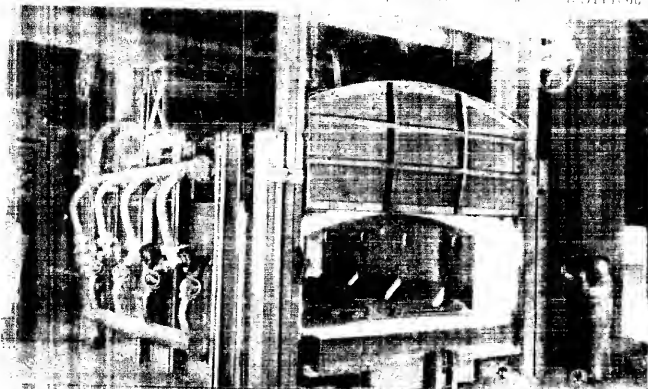
Dans l'industrie métallurgique et dans bien d'autres branches industrielles le traitement thermique comme la fusion, le réchauffage, la recuite, la trempe, l'adoucissement, l'émaillage et le séchage forme une partie importante de la fabrication et exerce une grande influence sur la qualité et le prix des produits d'autres sections de fabrication.

Un réchauffage irrégulier ou le brulage causent des rebuts et la perte du travail précédent.

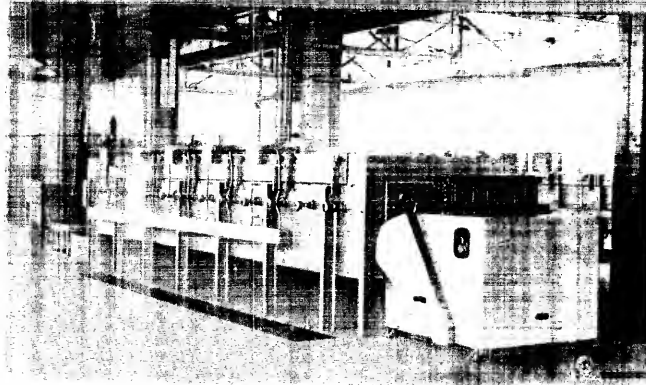
Pour atteindre la meilleure qualité des produits à un coût le plus bas possible il est important de choisir le type et la construction les plus convenables du four et les meilleurs sources et modes de chauffage. Tous ces facteurs ont une influence décisive sur le résultat final de la fabrication, c'est à dire sur le volume de la production et sur la qualité et le prix de revient.



ŠKODA



Fours électrique continus à tubes pour le traitement des métaux et des alliages en acier



En raison de la perfectionnée, les fours industriels de type Škoda offrent les qualités suivantes :

1. Grand effet thermique

Grâce à la consommation de combustible exiguë, les fours Škoda traitent le poids du matériel traité :

2. Embarras réduit

Les fours Škoda peuvent être installés à la proximité des machines qu'ils doivent desservir, ce qui facilite le transport du matériel réchauffé sans encombre. Le matériel ne refroidit pas et il est possible de le réchauffer à une température plus élevée, ce qui réduit la formation des barres dures.

3. Manœuvre simple

Il ne faut qu'un ouvrier surveillant les machines. Il ne perd pas de temps le service du four.

4. Le rendement des fours Škoda

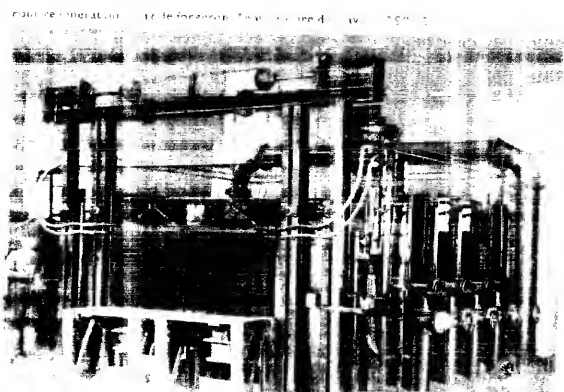
Il peut être élevé dans les limites limites, d'après la cadence de travail à l'atelier. Le produit doit être réchauffé dans le four au moment où on en a besoin, car si le réchauffage est retardé, la cadence du travail en souffre. Au contraire, si le produit est réchauffé trop tôt, la qualité en souffre et il en résulte des frais supplémentaires.

5. Propreté au chauffage

Dans le four, il ne doit se former ni saleté, ni cendres, ni des scories, afin de ne pas se salir le produit réchauffé. La pierre réchauffée reste propre, ce qui évite l'usure prématurée des machines et des cylindres. La qualité des produits est améliorée et le pourcentage de rebut est plus bas.

Ces avantages des fours Škoda ont été atteints :

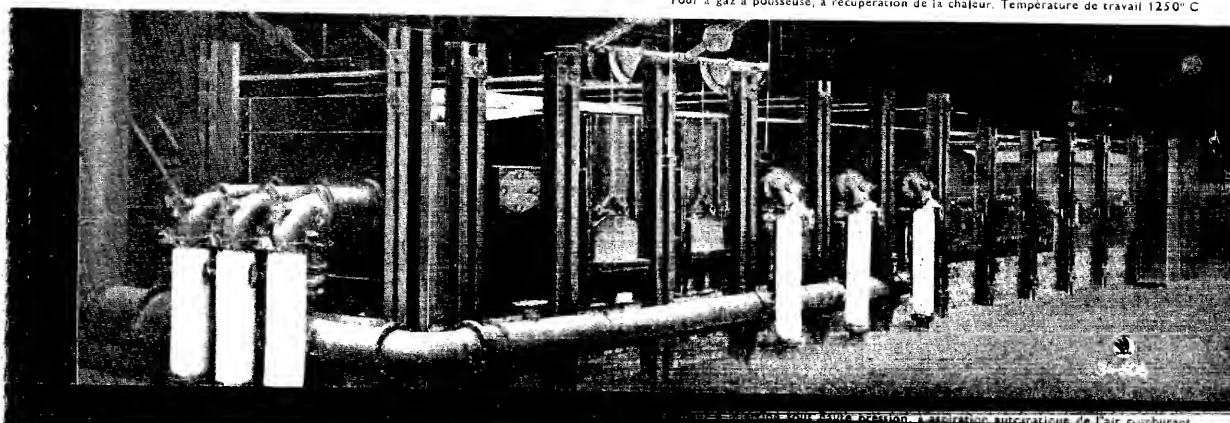
- par la réduction des dimensions des fours par rapport à leur rendement et par la perfectionnement de leur structure ;
- par un réglage parfait des combustibles à l'aide de brûleurs spéciaux pour chaque sorte de combustibles, par l'emploi de brûleurs sous pression réglables dans des limites et par un réglage automatique du gaz et de l'air et aussi de la température, indépendamment du personnel de service ;
- par la répartition régulière des températures dans l'espace, la rotation du four, un placement convenable du matériel, la conception des brûleurs, une utilisation économique des gaz, le chauffage et la ventilation convenable de la fumée. Dans les fours Škoda, il est important d'obtenir un équilibre des températures ;
- par l'emploi d'une série de matières premières, les spéciaux de matière plastiques et d'illuminants, traités à la chaleur ;
- par l'automatisation et l'automatisation poussée de la manœuvre des fours.





ŠKODA

Four à gaz à pousseuse, à récupération de la chaleur. Température de travail 1250° C



CHAUFFAGE

Les Etablissements Škoda construisent des fours pour tous les systèmes de chauffage, comme à charbon pulvérisé, à gaz divers (gaz d'éclairage, gaz à eau, gaz de générateur brut ou épuré) ainsi qu'à gaz sous pression.

En plus de cela les Etablissements Škoda construisent des fours chauffés aux combustibles liquides comme naphte, huile, goudron, mazout, déchets divers de distillation d'huiles et des fours à brûleurs spéciaux à goudron, mazout etc.

Fours électriques à résistance et à induction pour toutes les branches d'industrie.

Notre service technique considère comme son devoir de faire examiner sur place les conditions de service par ses spécialistes. Il conseille le client et met à sa disposition son expérience pour le choix du type, des dimensions et du système de chauffage, afin que le four satisfasse aux besoins de l'atelier en question.

Nous saluons la collaboration étroite des techniciens du client avec nos spécialistes et considérons indispensable que les intéressés remplissent exactement le questionnaire ci-inclus en y ajoutant éventuellement leurs remarques.

Nos bureaux d'études ne suivent pas seulement les résultats obtenus dans nos services, ateliers et laboratoires, mais s'intéressent aussi aux établissements étrangers. De cette manière ils recueillent une grande expérience et des connaissances nouvelles applicables dans la technique thermique moderne.

De cette façon on est arrivé à un haut degré de perfection technique de nombreux fours de types divers qui satisfont à toutes les exigences d'un service sûr et parfait et garantissent une utilisation économique des combustibles, un nettoyage facile et la possibilité d'accès à tous les organes.

On a fourni un grand nombre de fours à l'étranger où ils travaillent à l'entière satisfaction de la clientèle et souvent dans des conditions très dures.

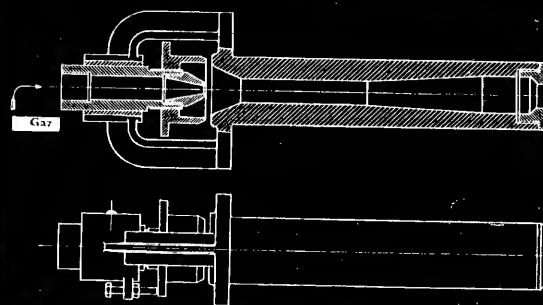
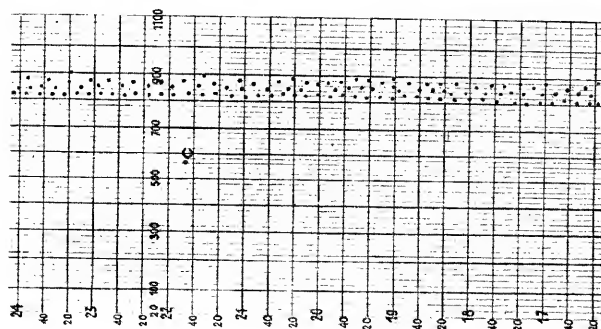
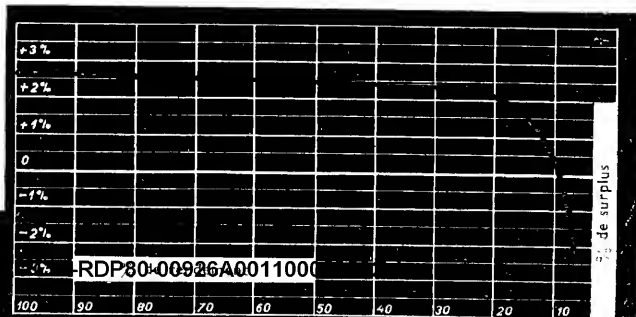


Diagramme des températures dans le four à brûleurs à injection sous haute pression



Cours de la formation du mélange de gaz et d'air dans la tête du brûleur à injection pendant le réglage de sa puissance



ACCESSOIRES DES FOURS

avec les fours complets les Etablissements Škoda fournissent ces installations auxiliaires comme: machines, défourneuses, presses à lingots, coquilles de refroidissement, coquilles roulantes refroidies à l'eau, conduites à gaz, l'air d'huiles, réservoirs spéciaux à huile, pompe à huile pour le chauffage à l'huile et la trempe, économie d'eau pour l'adoucissement dans l'eau, installations de trempe et d'adoucissement à transport continu du matériel, comprenant des transporteurs etc., agitateurs et régénérateurs en acier et en matériel réfractaire, compresseurs à gaz, générateurs à gaz pour les combustibles et pour la production des gaz de lavage de toute sorte, installations de refroidissement, de lavage, de dégoudronnement et désulfuration des gaz.

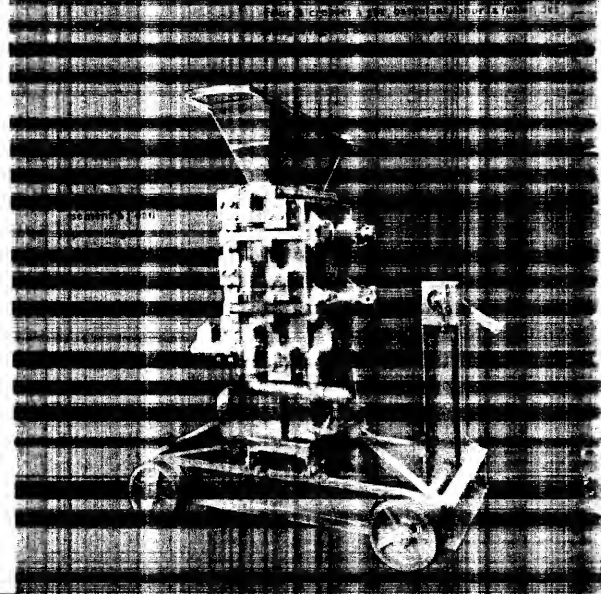
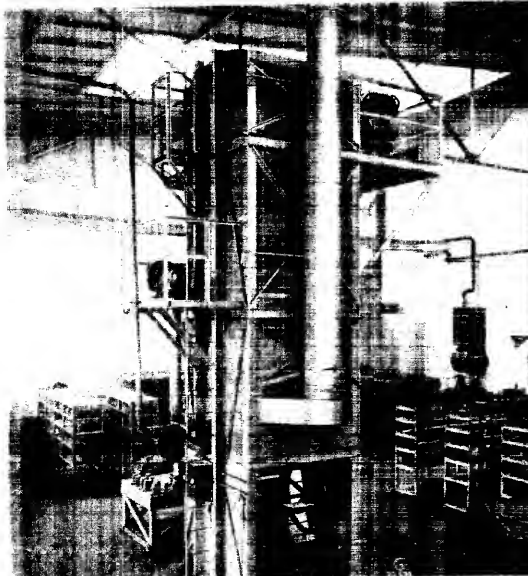
Le rendement de certains services (ateliers de forgeron, presses de laminaires, d'emallage etc.) dépend directement de celui de leur fours, dont l'équipement technique et la manœuvre doivent recevoir la même attention.

La charge la plus avantageuse du four et les exigences d'un service continu et économique dépendent toujours de la manœuvre consciencieuse exécutée suivant les règles d'exploitation.

Les Etablissements Škoda mettent chaque four nouvellement installé en marche, se chargent de son réglage, adaptent aux besoins du service et mettent au courant le personnel de service.

Les Etablissements Škoda
ont construit plus que 1000 fours industriels

Installation à élévateur pour soufflerie à l'acier (Plzeň)



Les Etablissements Škoda ont construit plus que 1000 fours industriels

Les Etablissements Škoda ont construit plus que 1000 fours industriels

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ŠKODA DIESEL ENGINES

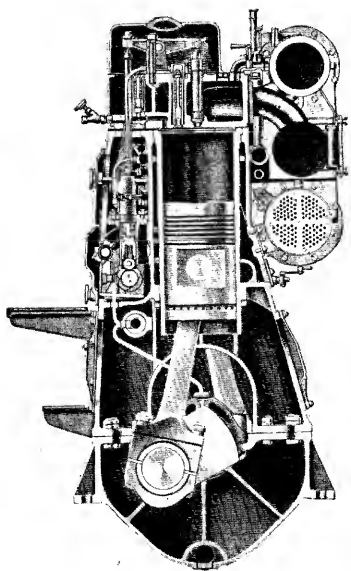
Return to CIA Library



ŠKODA

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STATIONARY FOUR-STROKE DIESEL ENGINES TYPE S



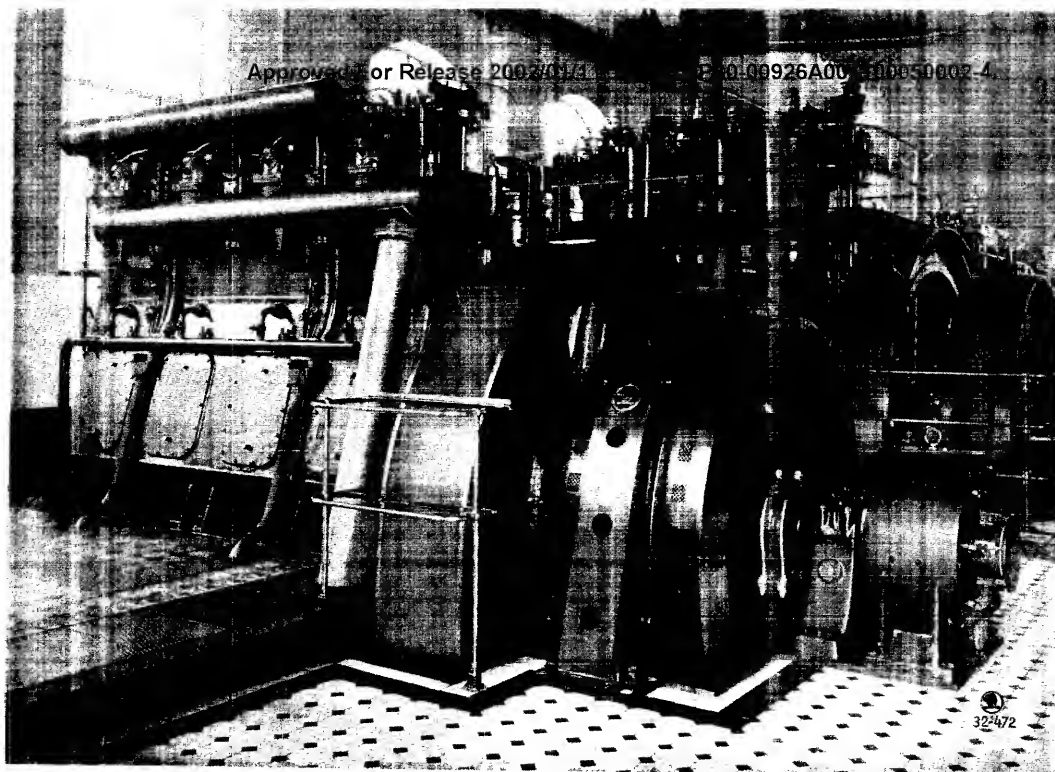
Type S according to cylinder bore in m/m.

TYPE S	220	275	310	350	425	525
No. of Cylinders	3, 4, 6, 8			4, 6, 8		
Rated Speed RPM	600	500	428	375	300	250
Rated Cylinder output corresponding to the above speed, in BHP	40	65	80	100	150	225

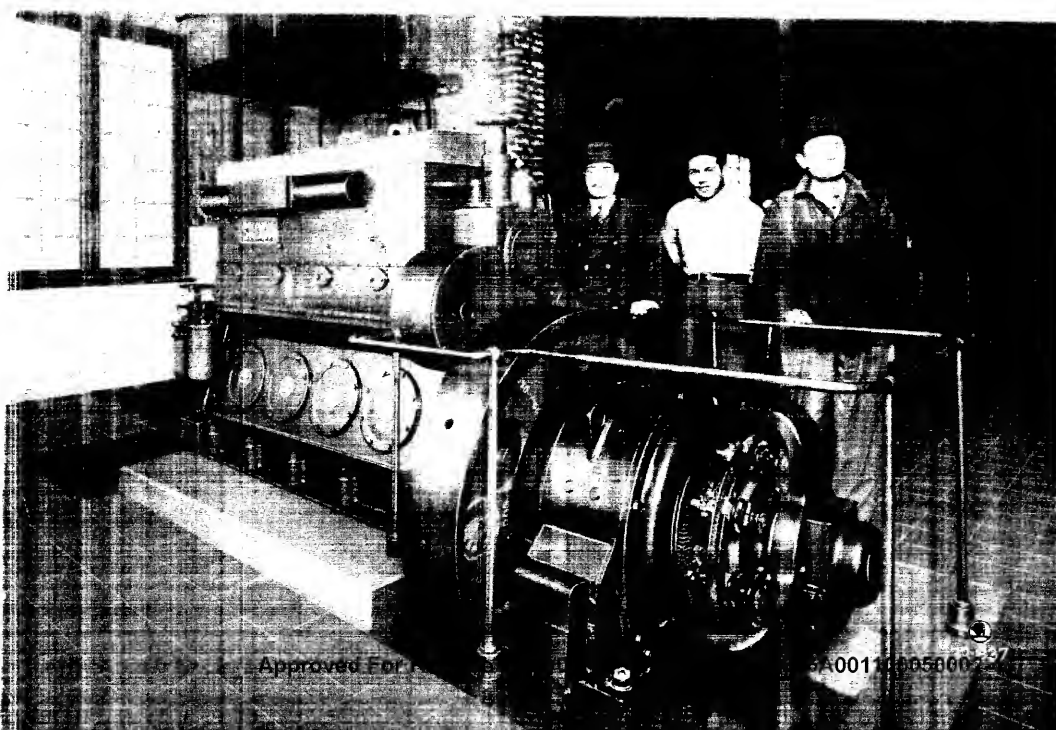
General description of engine

The running gear of Škoda Diesel engines is fully enclosed (oil-tight and dust-proof) by a box-shaped housing, consisting of crankcase and bedplate. The crankcase is provided with large openings, closed by easily removable covers, giving access to the crank-mechanism. The upper part of the crankcase supports a camshaft-trough, which, forms an oil bath, and carries the camshaft. The camshaft, driven by spurgear (helical gears) from the crankshaft is fitted with one exhaust-, one inlet-, one starting air valve- and one fuel injection cam per cylinder. The camshaft drive is arranged on the fly-wheel side to prevent transfer of torsional vibrations to the camshaft. Valves are actuated by means of pushrods and rocker levers. Fuel injection is effected for each cylinder separately through fuel injection pumps and injection valves with multi-hole nozzles.

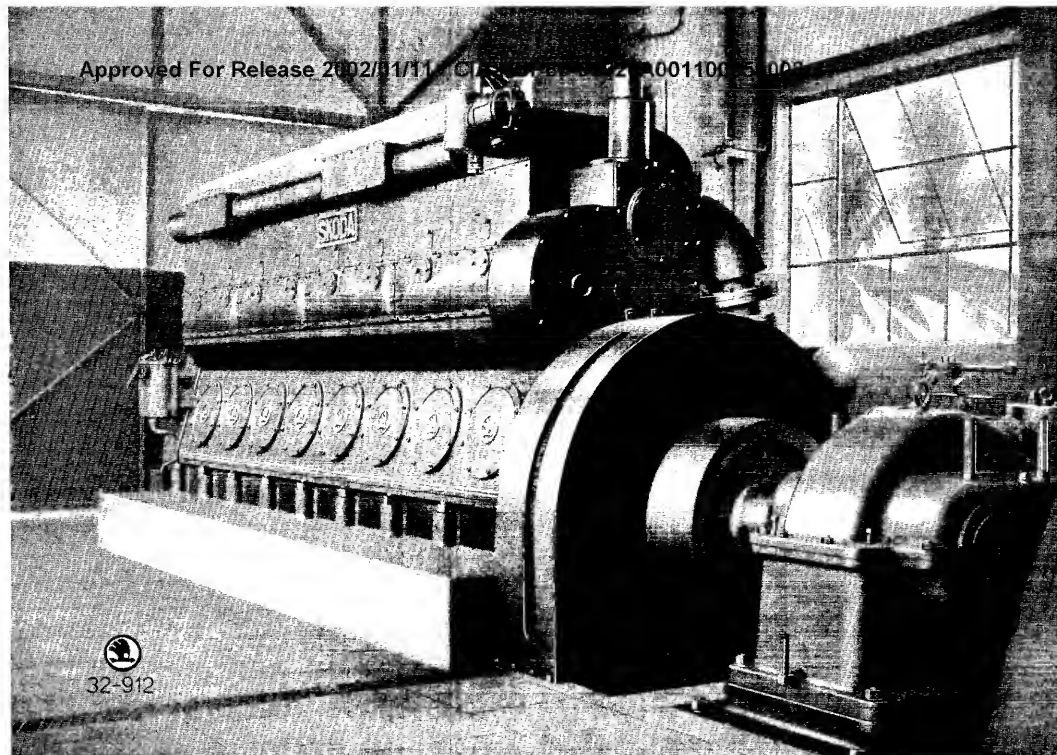
Pressure lubrication is applied throughout the whole engine, all moving parts being supplied with a continuous flow of lubricating oil. The lubricating oil pump (a gear pump) sucks the oil from the sump and delivers it via oilfilter and lubricating oil cooler (heat exchanger) to the main bearings, big ends, gudgeon pins and camshaft bearings and from thereback into the engine sump. A separate oil container can be installed outside the engine to enlarge the oil capacity of the plant. A pressure regulating overflow valve, interposed between oilpump and bearings permits adjustment of oil pressure and conveys excessive oil back to the sump. Watercooling is employed, the coolant being supplied either from the watermains or by a pump. Recooling is employed if sufficient quantities of fresh water are not available. The engine is started by compressed air, stored in air receivers (high-pressure air vessels) recharged by a separate compressor. Crude oil, gas oil, or brown coal tar oil can be used as fuel.



Diesel engine 4-S-125, 500 HP at 250 r. p. m., Czechoslovakia.

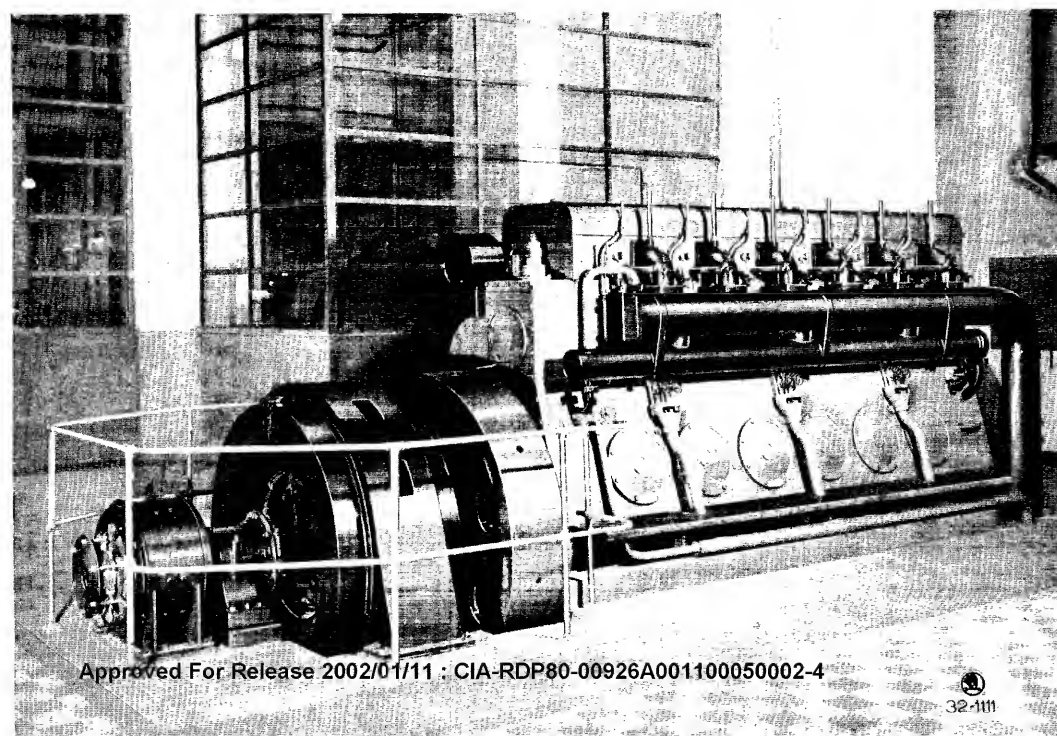


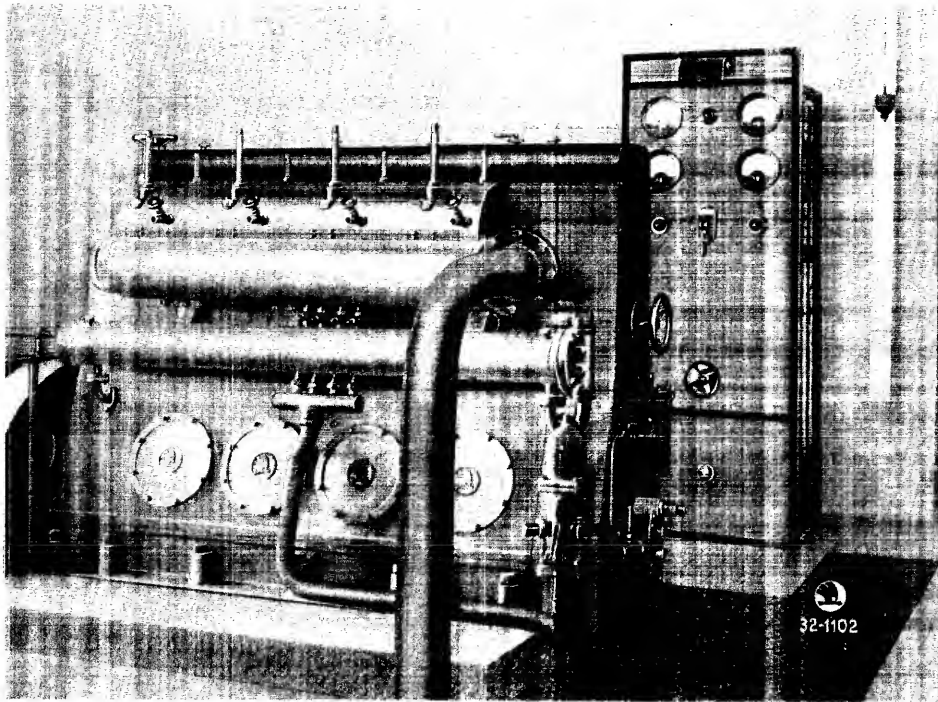
Diesel engine 4-S-215, 150 HP at 600 r. p. m., Egypt.



Diesel engine 8-S-215, 300 IHP at 600 r. p. m. Billiton-Malaya.

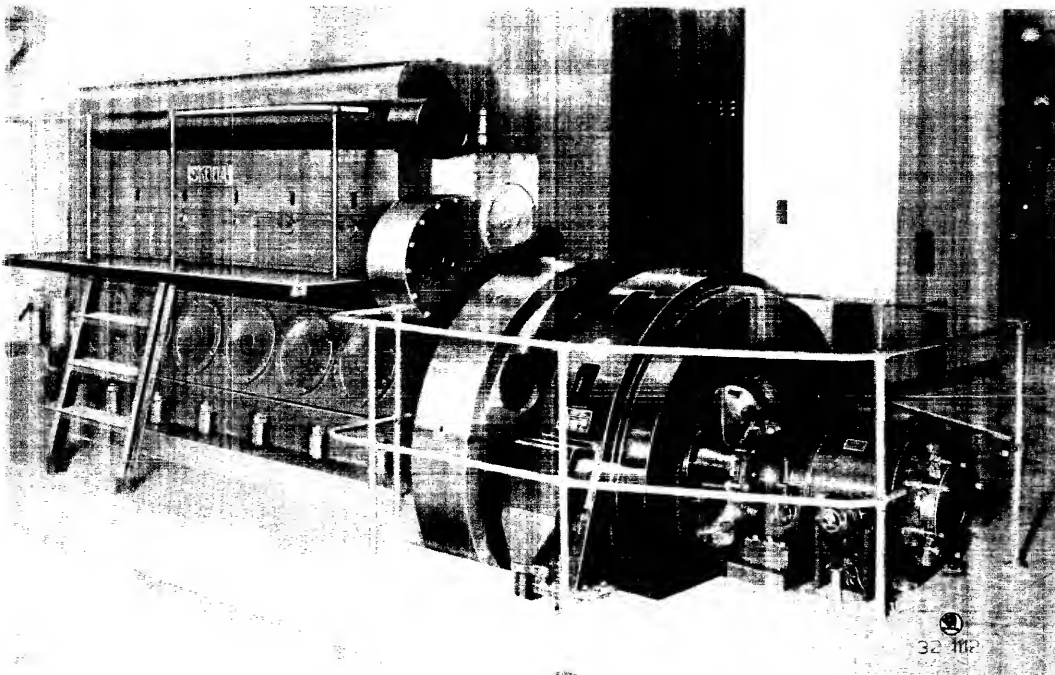
Diesel engine 6-S-270, 375 HP at 500 r. p. m. Czechoslovakia.

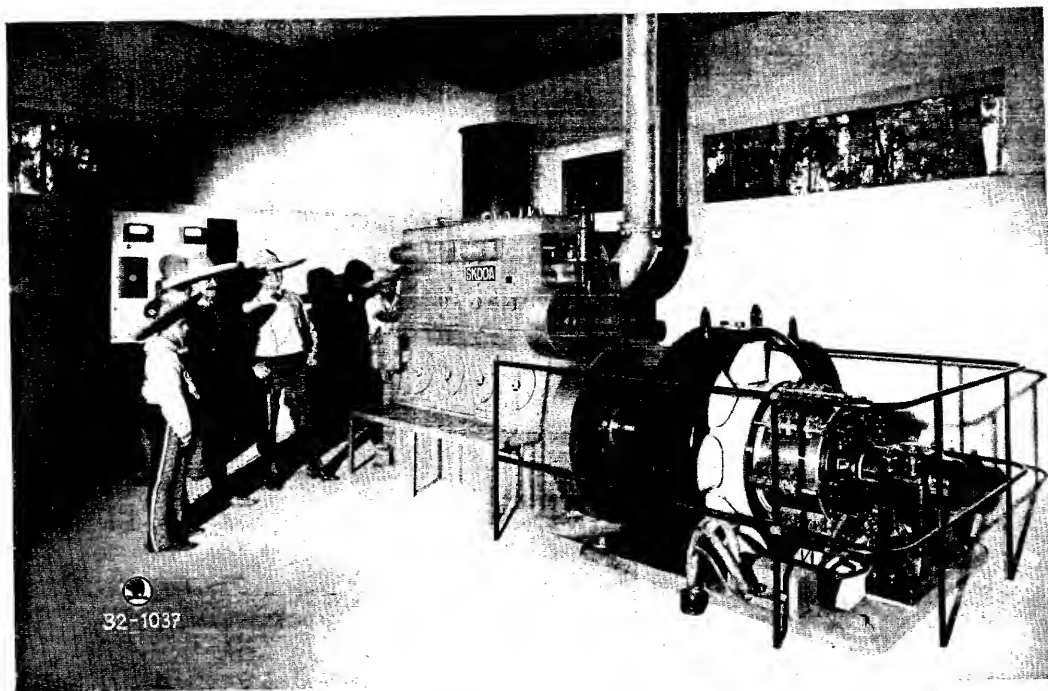




Diesel engine 4-S-215, 150 HP at 600 r. p. m., Poland.

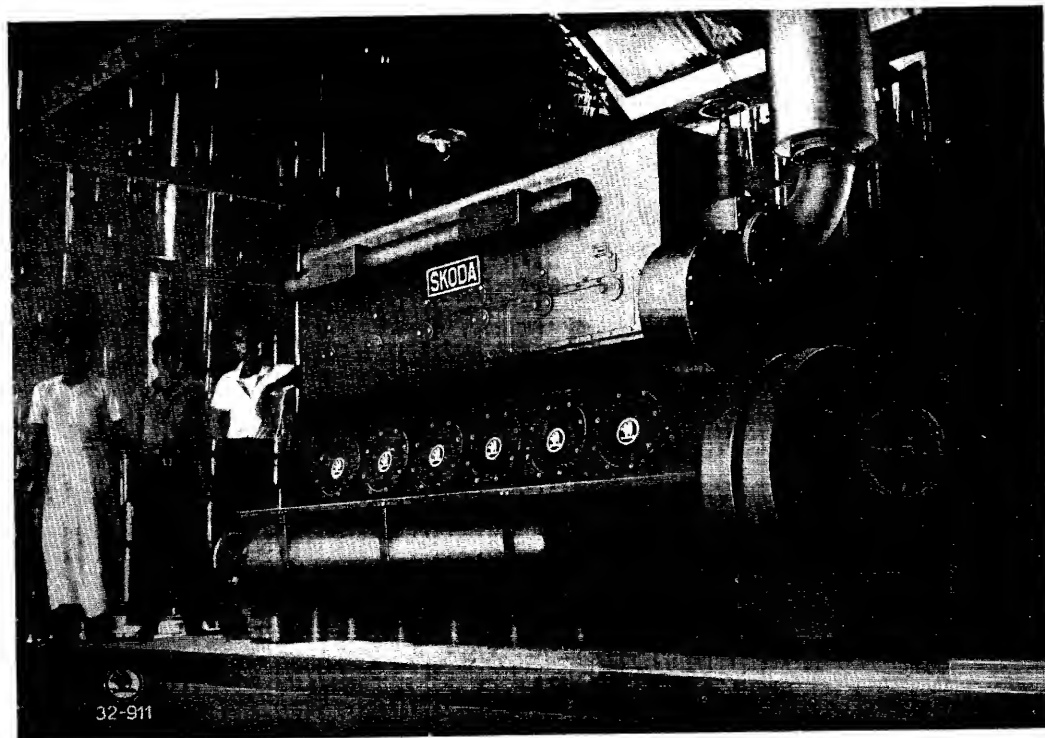
Diesel engine 6-S-270, 375 HP at 500 r. p. m., Holland.



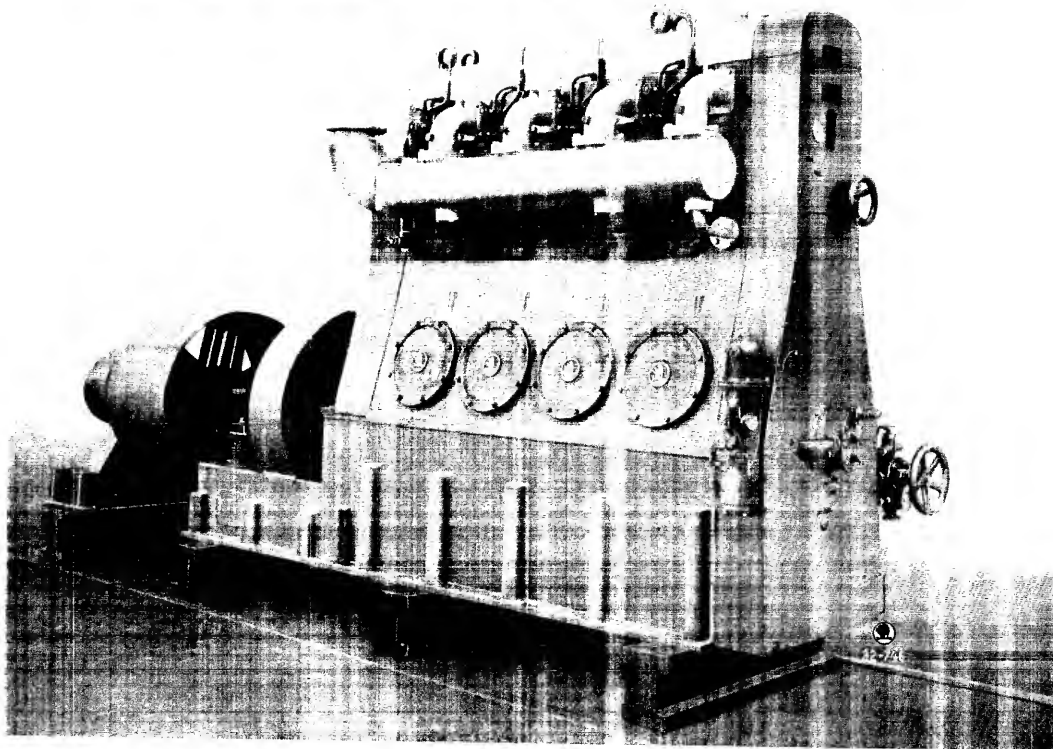
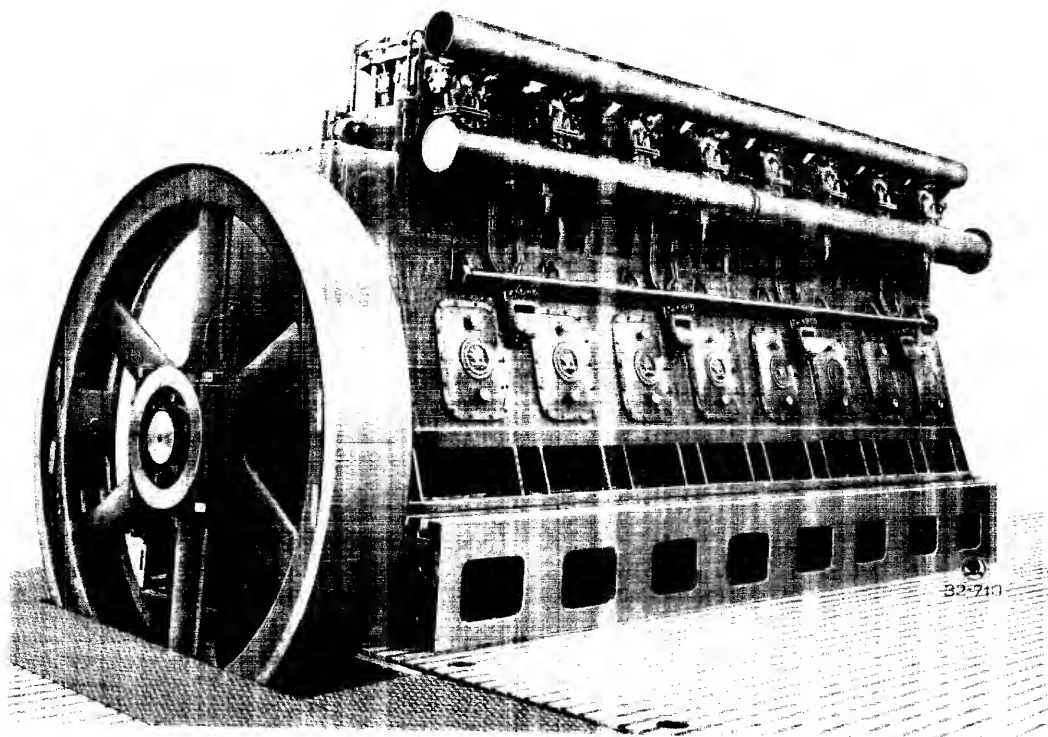


Diesel engine 4-S-215, 150 HP at 600 r. p. m. Mexico.

Diesel engine 6-S-215, 225 HP at 600 r. p. m. Malaya.

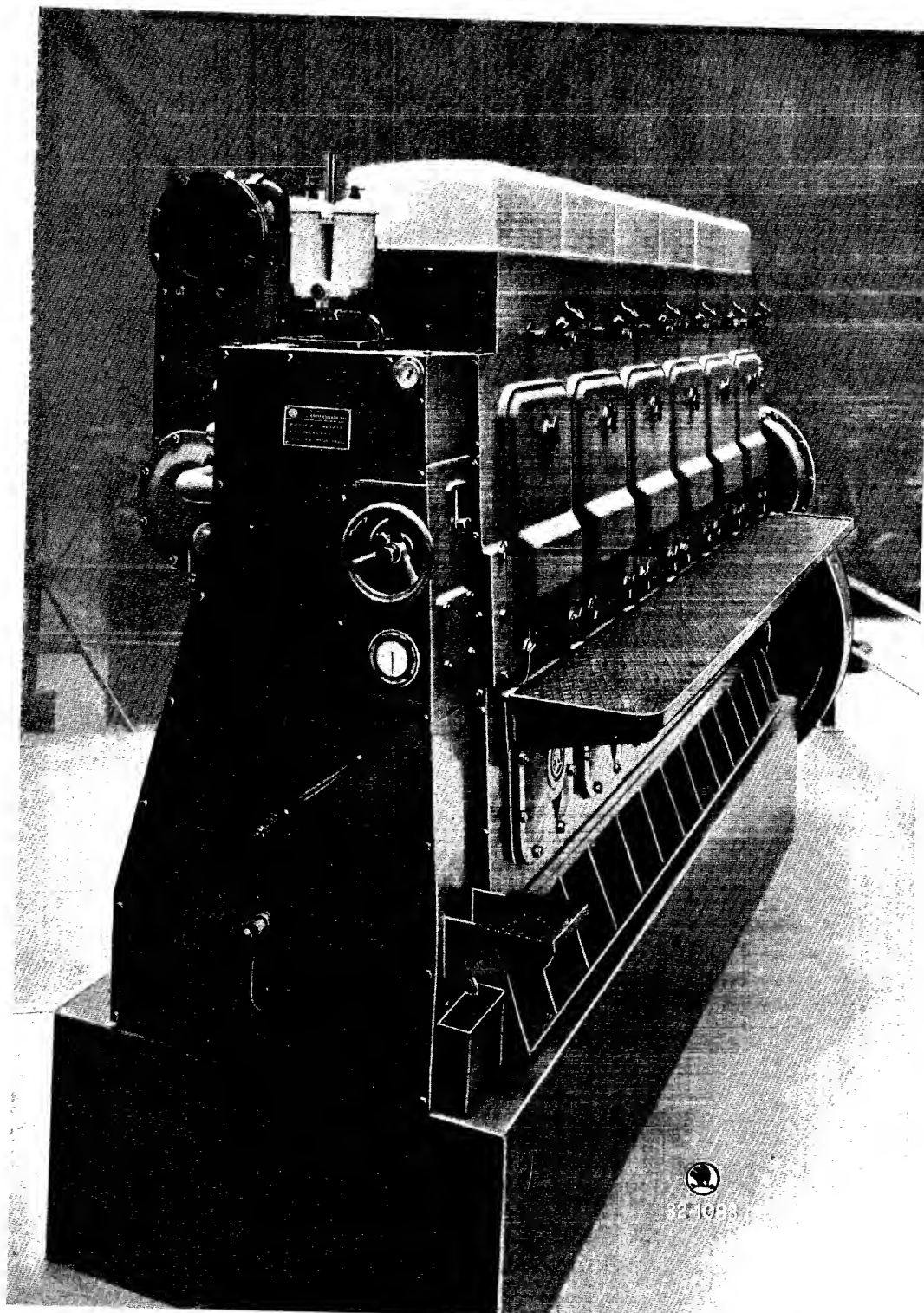


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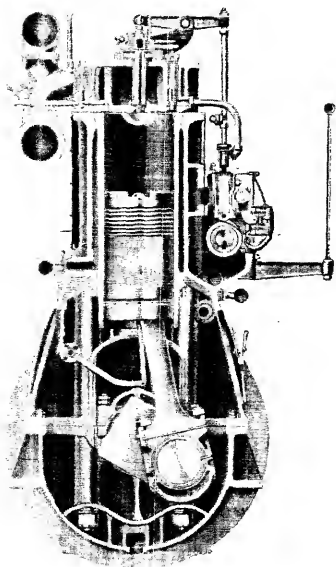
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Approved For Release 2002/01/11 : CIA-RDP80-00926A001100050002-4n. Iran.

ŠKODA MARINE DIESEL ENGINES TYPE M

Type M according to cylinder bore in mm.

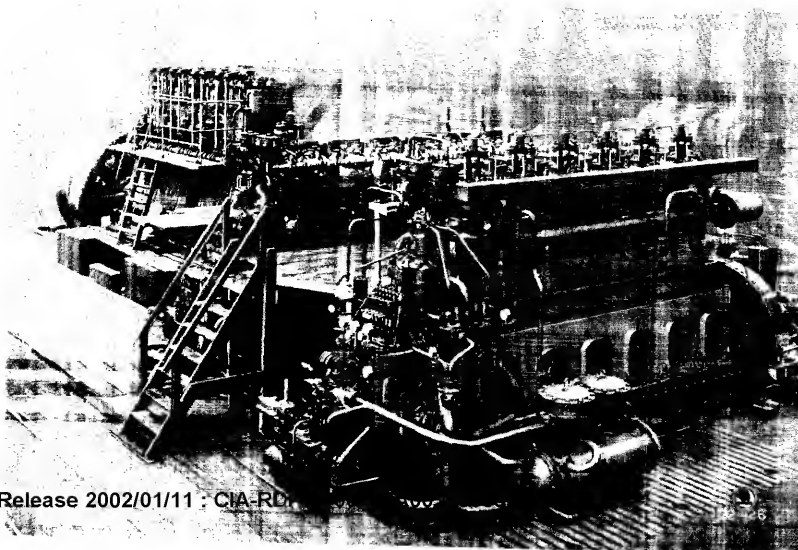


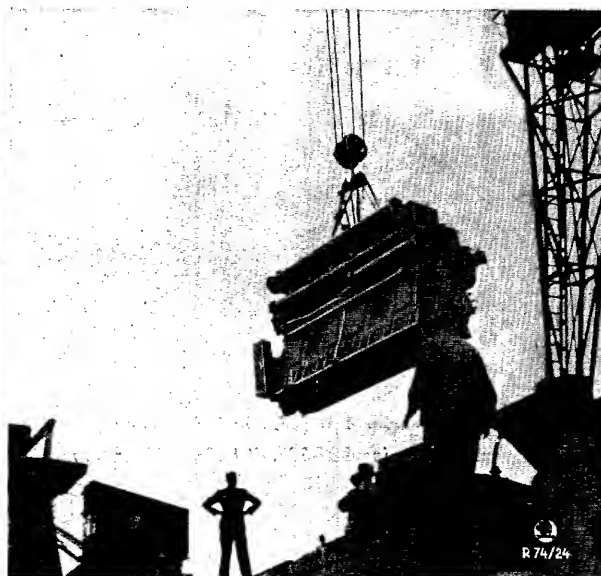
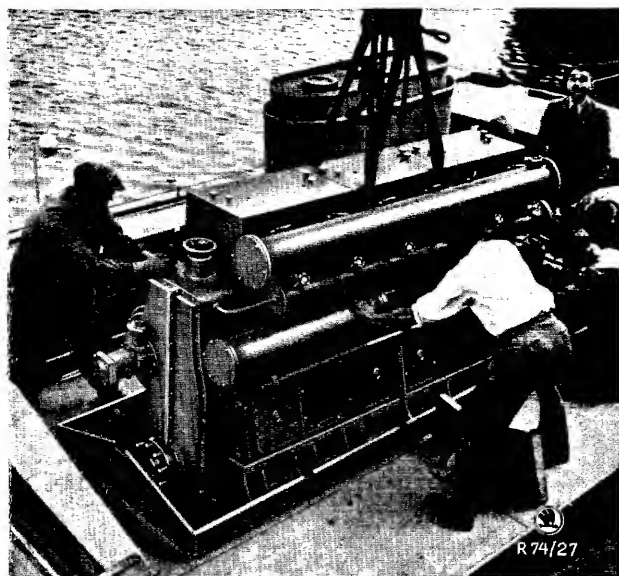
TYPE M	220	275	310	350	425	525
No. of Cylinders	6 and 8					
Rated Speed RPM	500	428	375	300	250	220
Rated Cylinder output corresponding to the above speed, in BHP	33.3	55	70	87.5	125	200

General description of engine

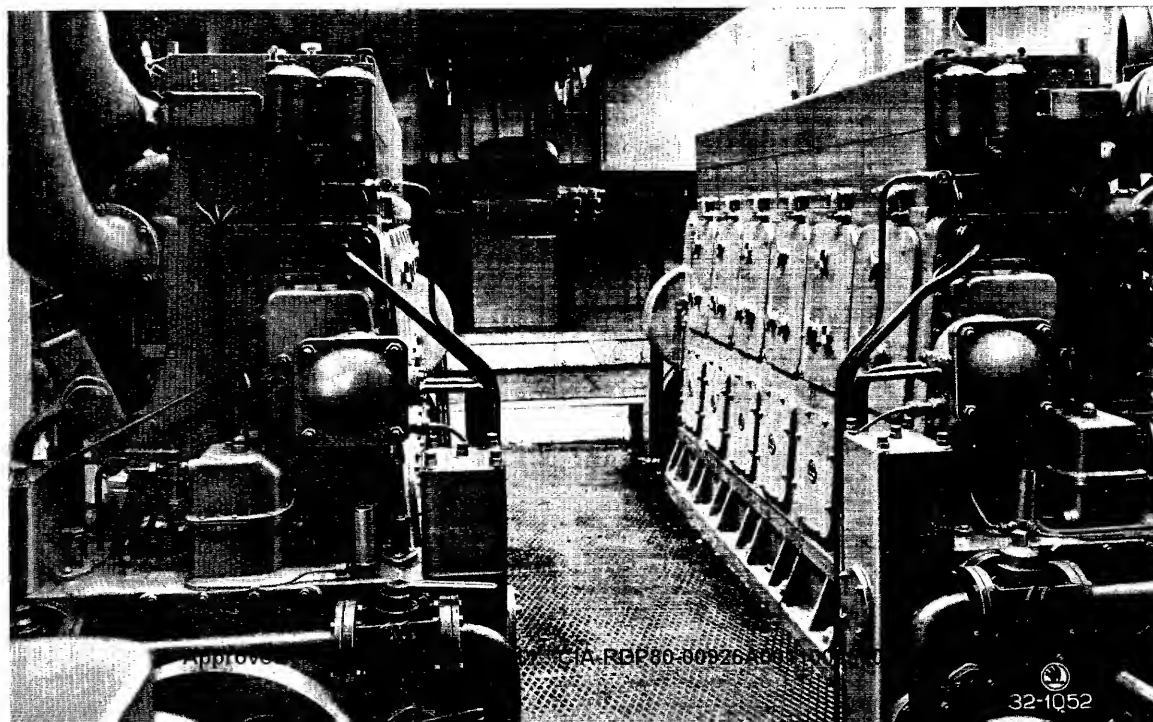
Direct reversible Škoda four-stroke Diesel Engines are used for Marine propulsion and are built in 6 and 8 cylinder units. The reversing of the direction of revolution is carried out by means of compressed air, which is also used for starting purposes. These engines are, according to Lloyd's Register of Shipping, equipped with cooling water and bilge pumps (plunger pumps), an air-compressor and a safety governor. The controls of the engine are concentrated on a separate platform or on the free end of the engine. All main parts conform to the rules and regulations of Lloyd's Register of Shipping.

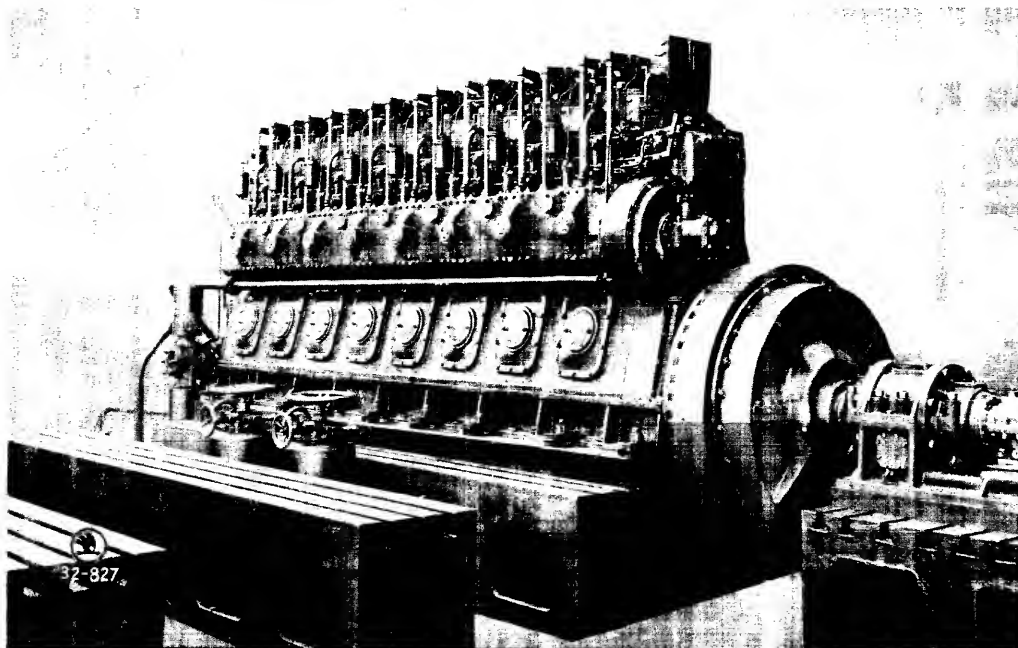
*Marine diesel engines
for the Danubian Navigation
Company.*



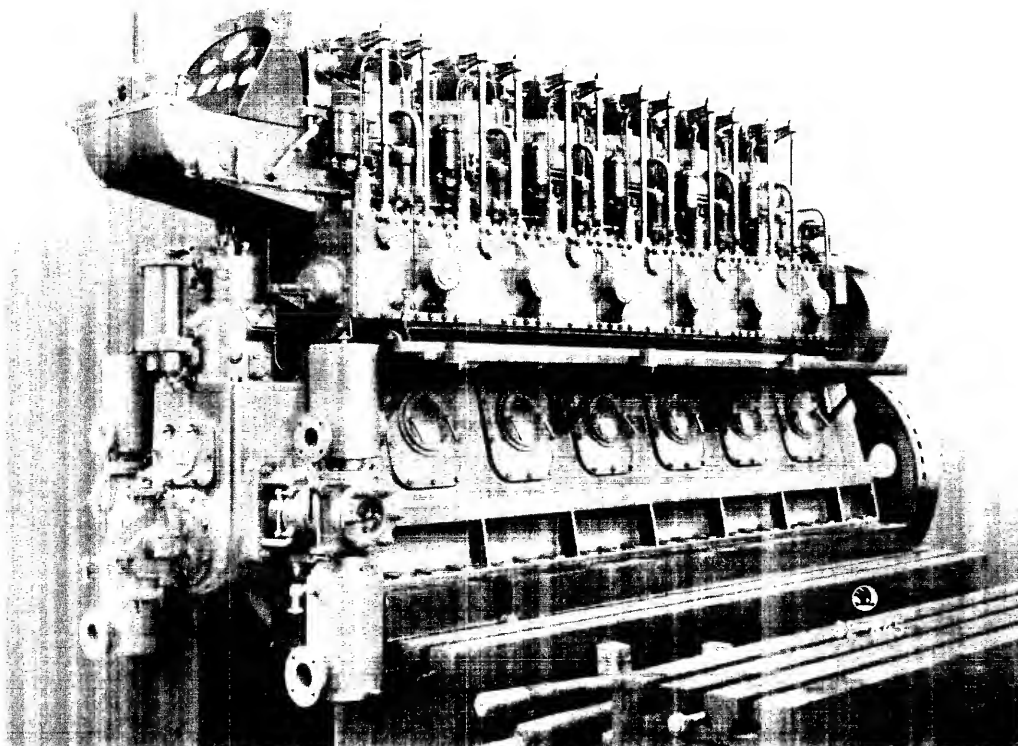


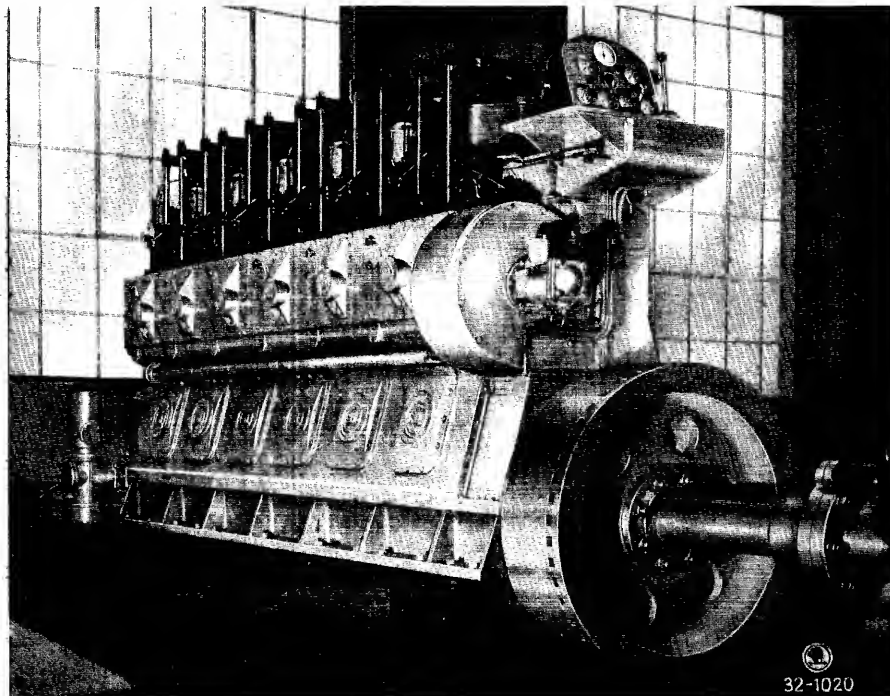
Installing two diesel engines 6-M-220, 200 HP at 500 r. p. m. in a river ice boat.



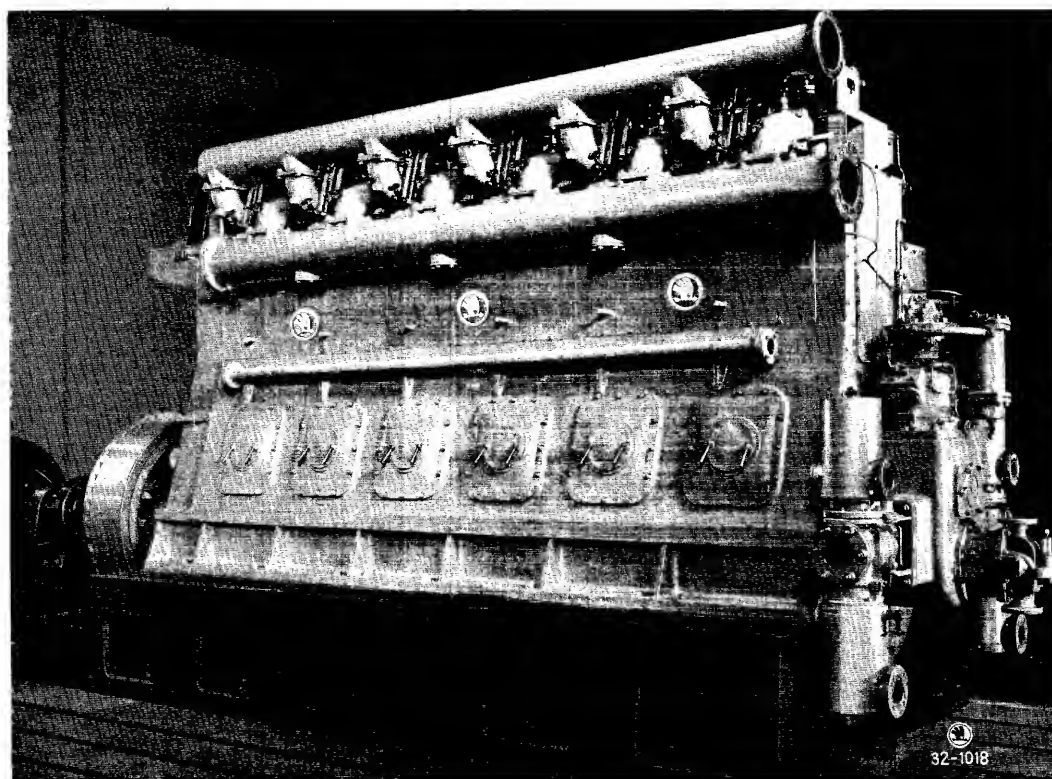


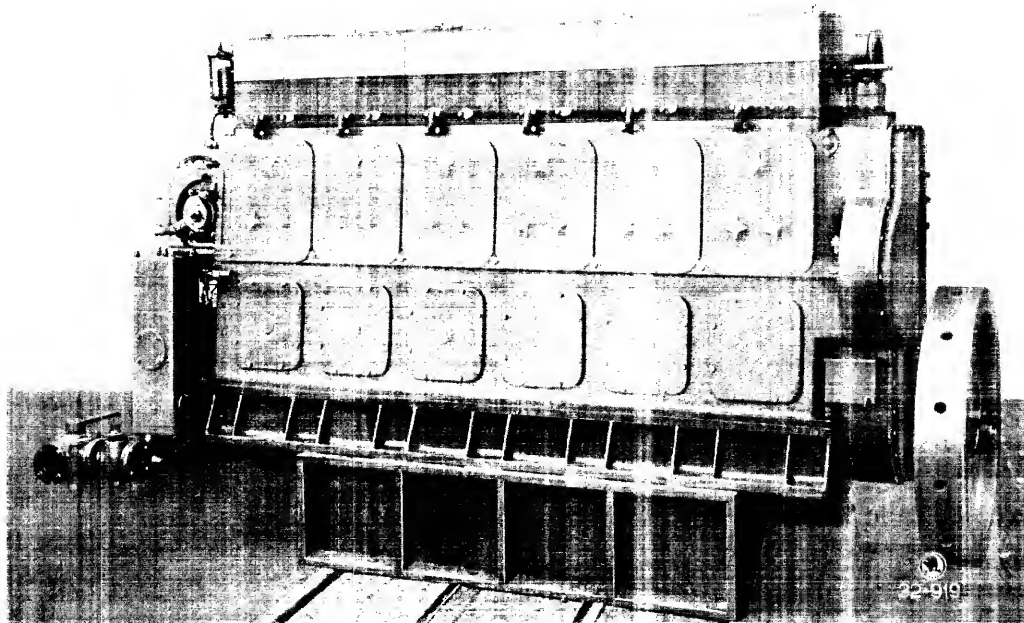
*Diesel engine 8-M-305, 500 HP at 350 r. p. m. Danubian tug. Czechoslovakia.
Diesel engine 6-M-305, 400 HP at 375 r. p. m. Belgrade Yugoslavia.*





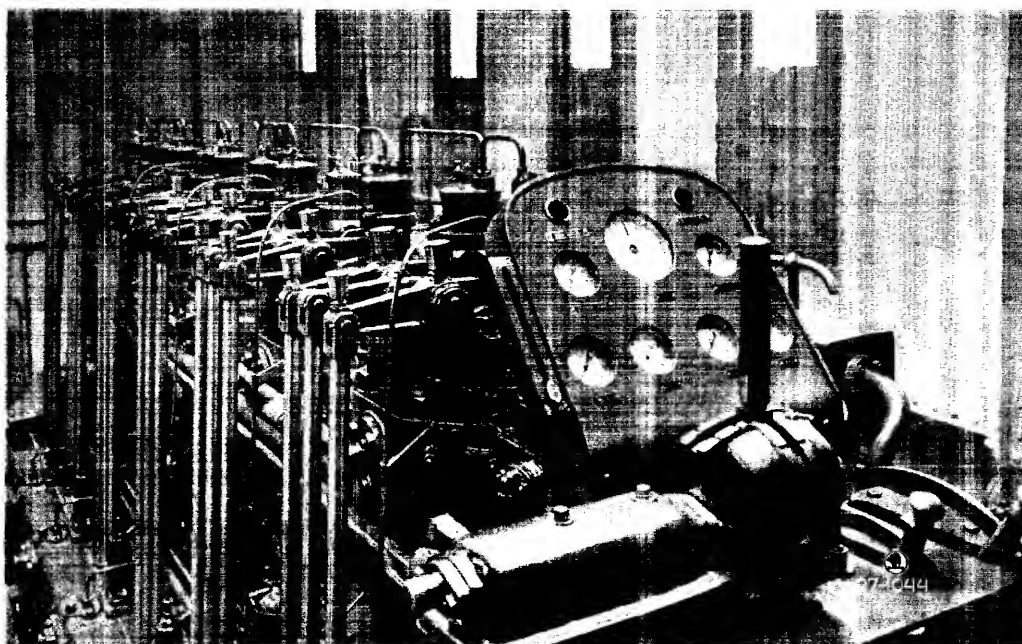
Diesel engine 6-M-350, 525 HP at 300 r. p. m. Rumania.





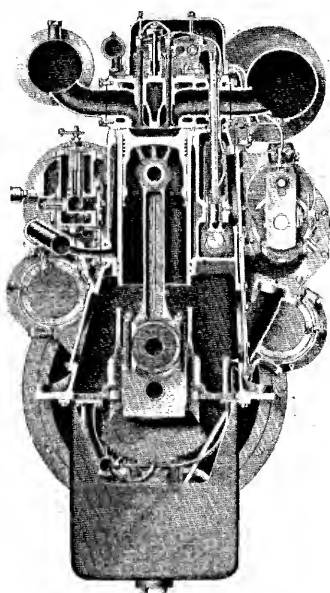
Diesel engine 6-M-220, 200 HP at 500 r. p. m., Czechoslovakia.

Engine room of a Decubian freighter with Skoda Diesel engines.



ŠKODA HIGH SPEED DIESEL ENGINES TYPE R

Type R according to cylinder bore in m/m.



TYPE	R 140	RV 160	R 175	R 230	R 310	RDK 400*
No. of Cylinders	4 8	12	4 8	4 8	6-8	3-10
Rated speed RPM 4 cyl.	1000	—	1000	1000	—	470
More than 4 cyl.	1500	1400	1200	1000	700	470
Rated Cylinder outputs for the above speeds, in BHP for 4 cyl. units	20	—	33.75	66.6	—	300
For more than 4 cyl. units	30	33.3	40	66.6	120	300

* The type RDK 400 is a high speed two stroke engine with scavenging air pump.

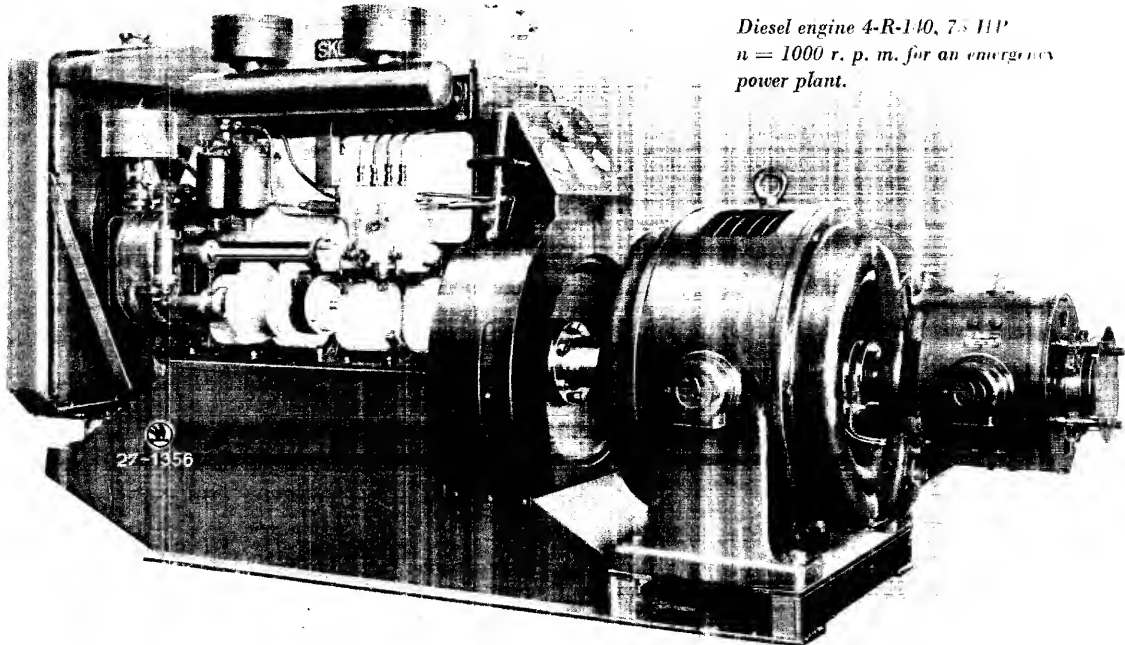
General discription of engine

Škoda high speed Diesel engines are fully enclosed, oil and dust-proof units, employing aluminium alloy pistons, alloy steel connecting rods and crankshafts with mainbearings lined with high class white metal (tin Base babbit) and big end bearings with lead-bronze. The free end of the crankshaft carries a torsional vibration damper.

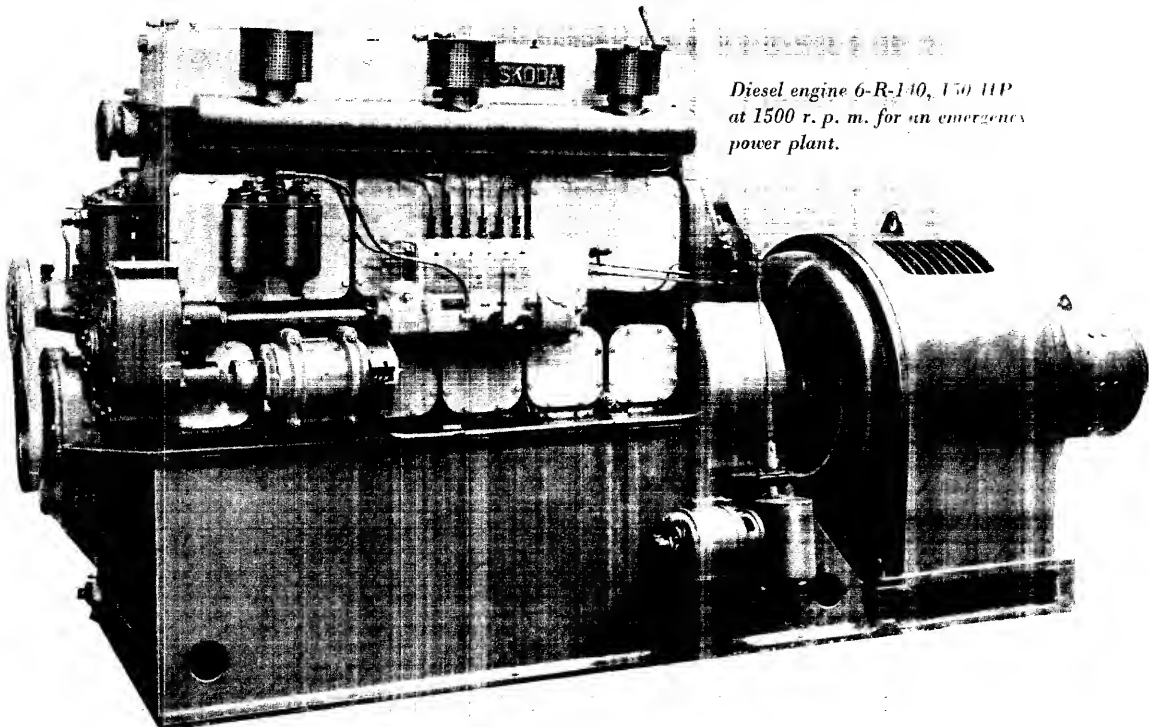
According to requirements either constant speed governors or variable speed governors can be provided, with speed adjusting means on the engine or by remote control. Forced lubrication is employed, the engine being equipped with either one or two lubricating oil pumps (gear pumps) according to the oil cooling system used. Oil pressure and temperature gauges are provided, the oil pressure being adjustable by means of a spring loaded pressure relief valve. Plunger- or centrifugal pumps are used to circulate the cooling water. The engine types R 110, R 140, RV 160 and R 175 can be equipped with either electric or pneumatic starting. Electric starting is achieved by means of a starter motor, which is fed by accumulator batteries and recharged by a dynamo, fitted onto the engine. Starting of the types, R 230, R 310 and RDK 400 is carried out only by means of compressed air.

RANGE OF USE: Škoda high speed Diesel engines are suitable for the propulsion of vehicles (road), locomotives, rail cars, ships, boats, cranes, excavators, tractors, bulldozers, compressors, centrifugal pumps, Diesel electric power plants (peak output sets) or automatically controlled electric emergency power plants and emergency pumping stations.

Note: The types R 140, RV 160 and R 175 can be used as marine engines only in connection with reversing gear boxes, the types R 230, R 310 and RDK 400 are built for this purpose as direct reversible engines.

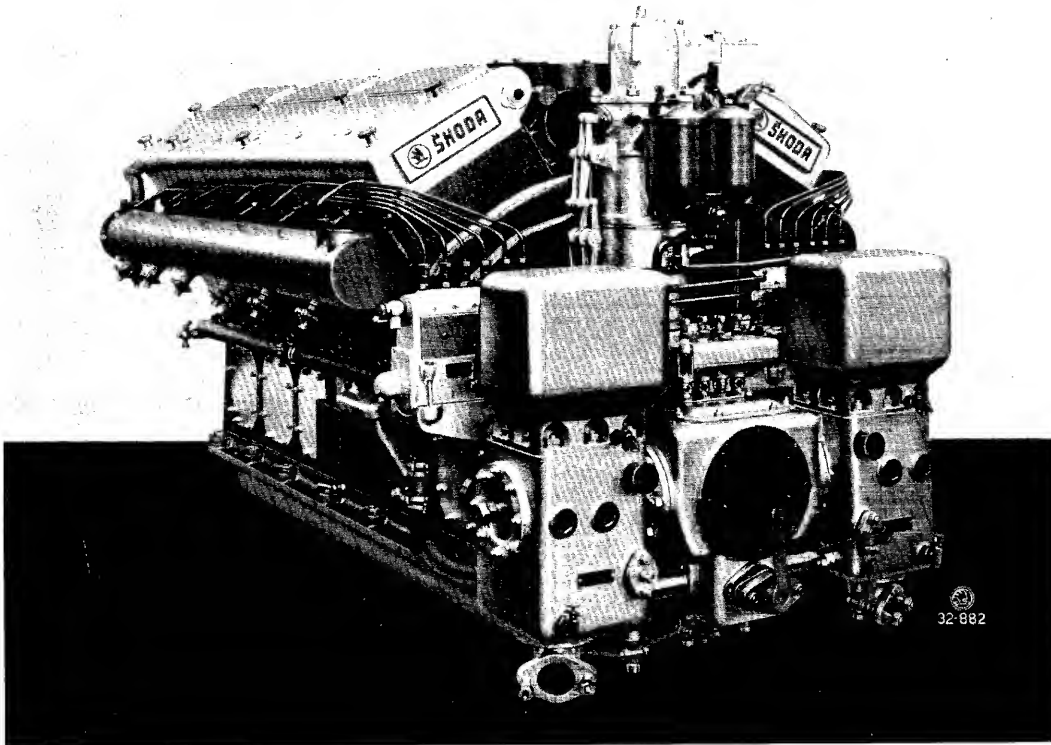


*Diesel engine 4-R-140, 7.5 HP
 $n = 1000$ r. p. m. for an emergency
power plant.*

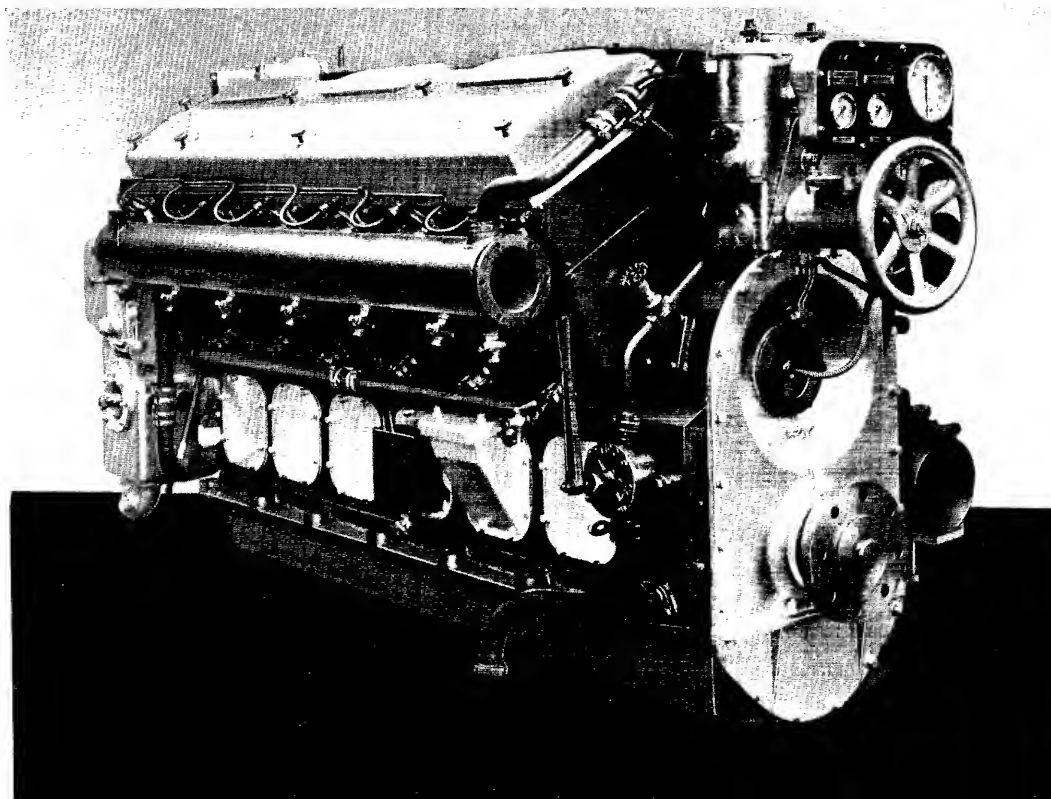


*Diesel engine 6-R-140, 150 HP
at 1500 r. p. m. for an emergency
power plant.*

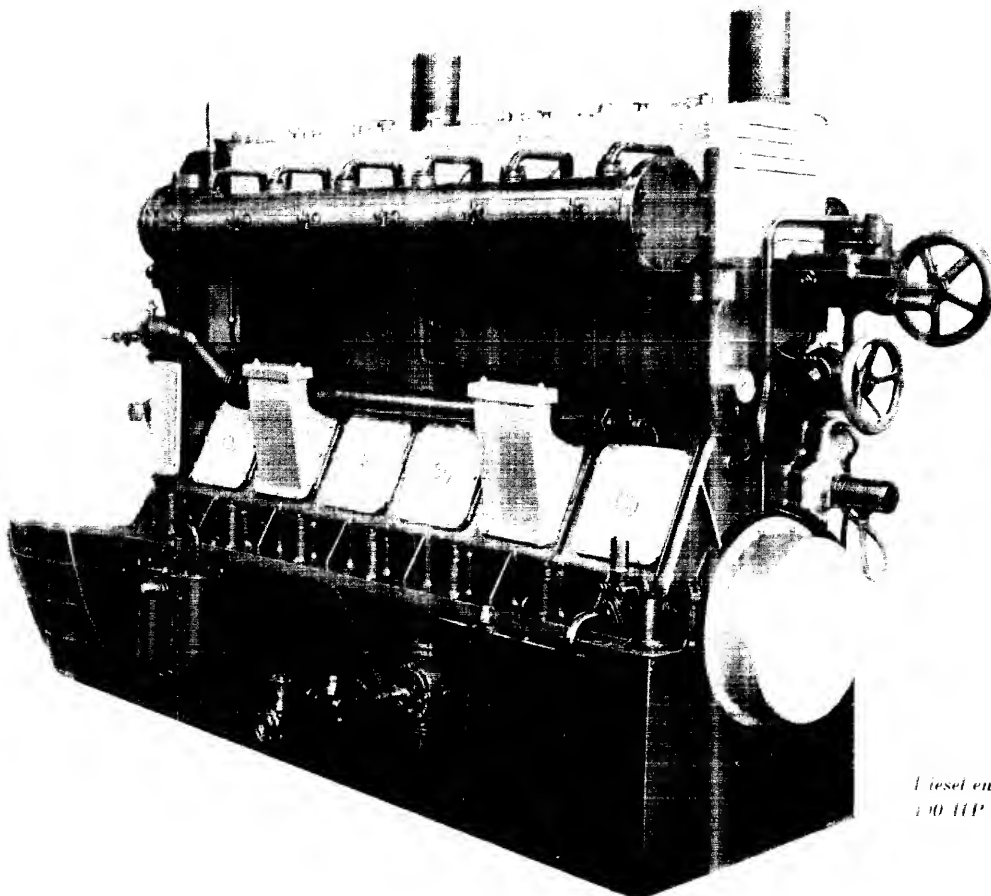
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Diesel engine 12-RV-160, 400 HP at 1400 r. p. m.

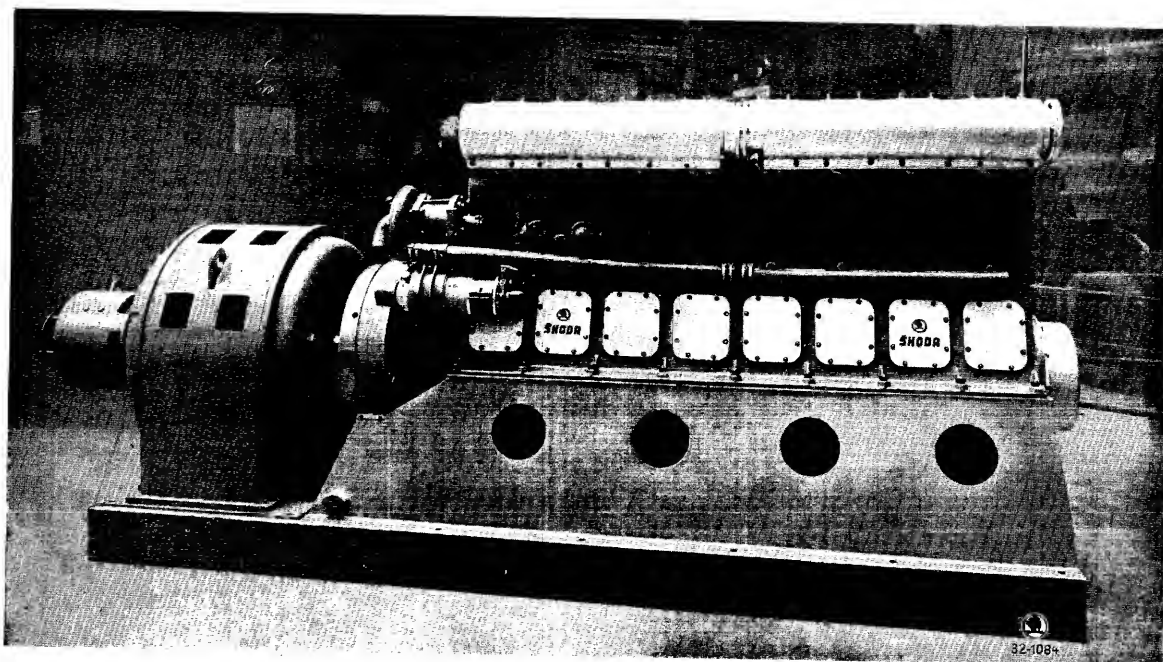


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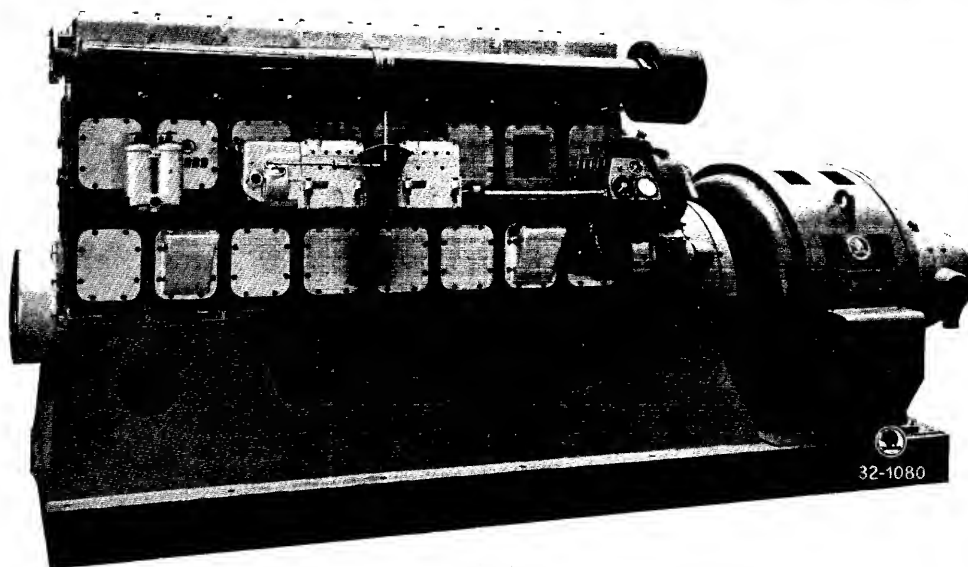


*Diesel engine - K-230
100 HP at 1000 r.p.m.*

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Emergency power plant Diesel engine 8-R-175, 270 HP at 1000 r. p. m.



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NATIONAL ŠKODA WORKS AT PLZEŇ
HEAD-OFFICE PRAGUE-CZECHOSLOVAKIA

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SUGAR FACTORIES



SUGAR FACTORIES

ŠKODA WORKS LTD

HEAD OFFICE PRAGUE-CZECHOSLOVAKIA



he two main raw materials for making sugar are sugar-cane and sugar-beet. Sugar-cane was known long before the Christian era. The knowledge of the „sweet product“ from sugar-cane slowly spread over the central and northern states of Europe, where sugar refineries were installed. The first cane-sugar refinery in Bohemia was built at Zbraslav in 1787. In 1747 Marggraf discovered saccharose in beet. Marggraf's disciple Achard devoted his attention to breeding sugar-beet, so that it became a serious competitor of sugar-cane as raw material for producing saccharose. The first factory producing saccharose from sugar-beet was founded at the end of the eighteenth century. In Bohemia the first experimental station was founded at Zbraslav in 1787. The success of these efforts was an impulse to install the first beet-sugar factory in this country, and the number soon increased, so that in the years 1840-50 there were already 61 sugar factories at work.

As to the treatment of sugar-beet, the Czech sugar factories had attained a high degree of perfection both from the technical and the economical point of view.

Sugar factories built by the Škoda Works were the first to introduce new methods invented by Czech engineers. In 1863 Jelinek introduced his saturation process, in 1864 Robert introduced diffusion, and 1886 Karlik worked with triple saturation. Lexa improved evaporation with multiple effect: the so-called combined evaporator with steam extraction. The names of our other inventors, Goller, Hodek, Müller, Kořán, Vincik and Turek, are permanently connected with the history of the world's sugar industry.

The satisfactory results in this country are due, first of all, to the intensive and rational cultivation of sugar beet, which in 1880 had still only about 8⁰/₁₀ of sugar, whereas it now has approximately 19⁰/₁₀. The crown of our efforts in the line of research is seen in the Sugar Research Institute in Prague-Střešovice, which required a capital of about 1,000.000 U. S. A. dollars and was opened in 1923.

The growth of the sugar industry would never have reached the high degree outlined above if it were not backed up by research into the question of sugar machinery.

The most up-to-date sugar making machinery supplied by the Škoda Works may be seen not only in Bohemia, Moravia and Slovakia, but also in England, France, Italy, Spain, Portugal, Yugoslavia, Roumania, USSR, Finland, Iran, Afghanistan, Turkey, India, Java, Siam, China, Brazil, Argentina, Chile, Peru and the United States of America. For 80 years past the Škoda Works have been supplying the necessary machinery for sugar factories to practically all parts of the world.

The Škoda Works manufacture all kinds of machinery for sugar factories in their own workshops. They can offer high-efficient boilers, steam turbines, and accurately fitting steel structures together with powerful cane-crushing mills, most up-to-date diffusion batteries, highly economical evaporators, quick-working vacuum pans, and high-speed self-discharging centrifugals.

The Škoda Works are one of the first engineering firms building complete beet-sugar and cane-sugar factories. In the sphere of the cane-sugar industry, the Škoda Works are backed up by the latest experience. Their designs for cane mills are constantly revised and kept up-to-date to suit the most modern requirements. The Škoda Works were also one of the first to supply fully electrified cane-sugar mills.

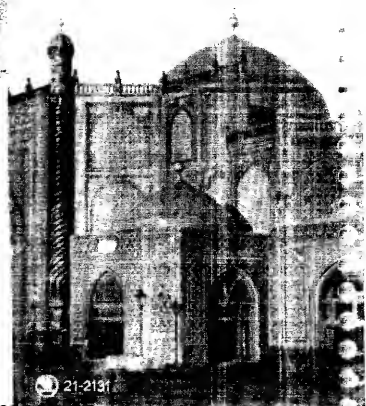
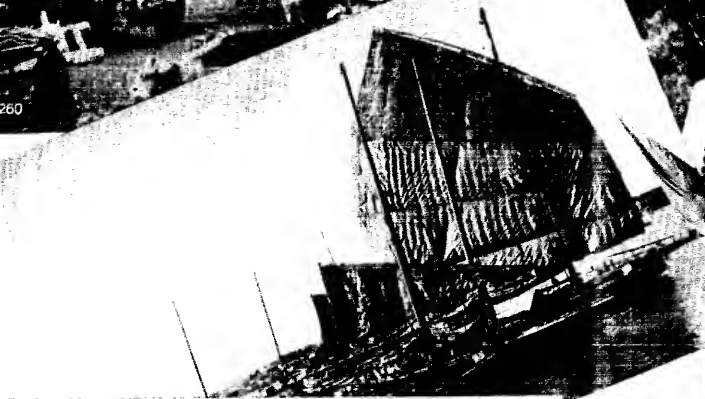
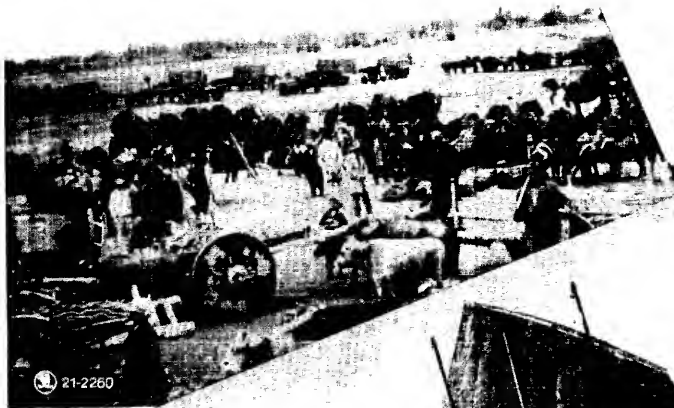
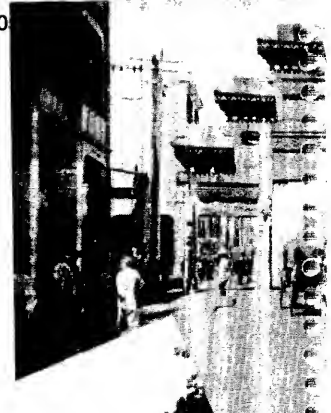
The Škoda Works are in a position to accept complete contracts for the supply of sugar factories, including all machinery and building work, and to give any technical advice and provide experts for the first season.

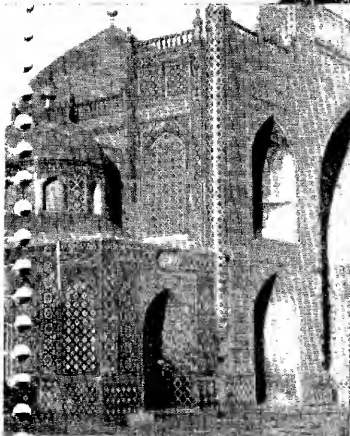
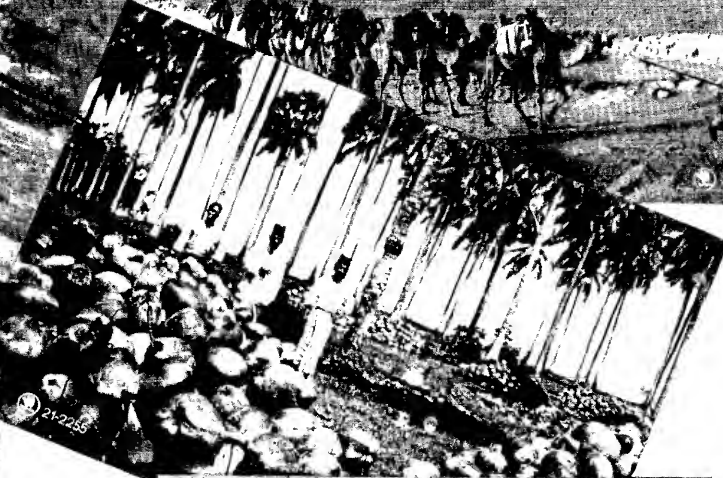
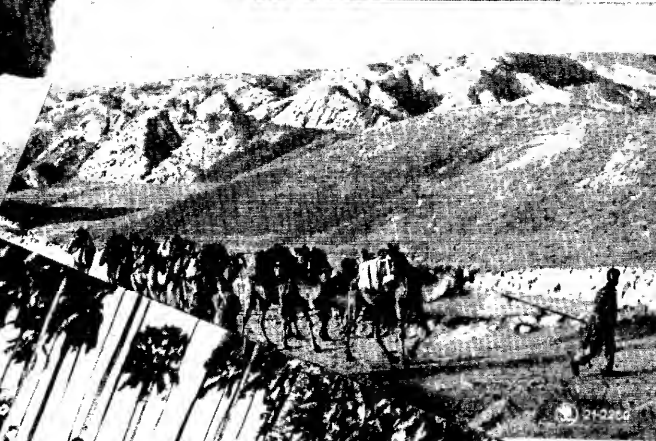
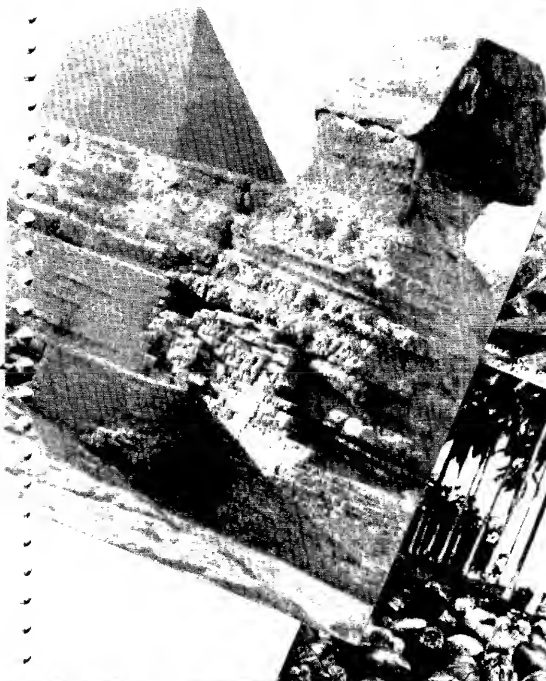
The following pages give illustrations of some of the machinery supplied by the Škoda Works all over the world.



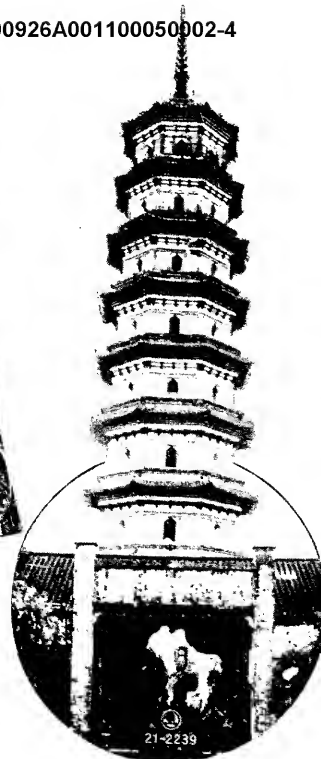
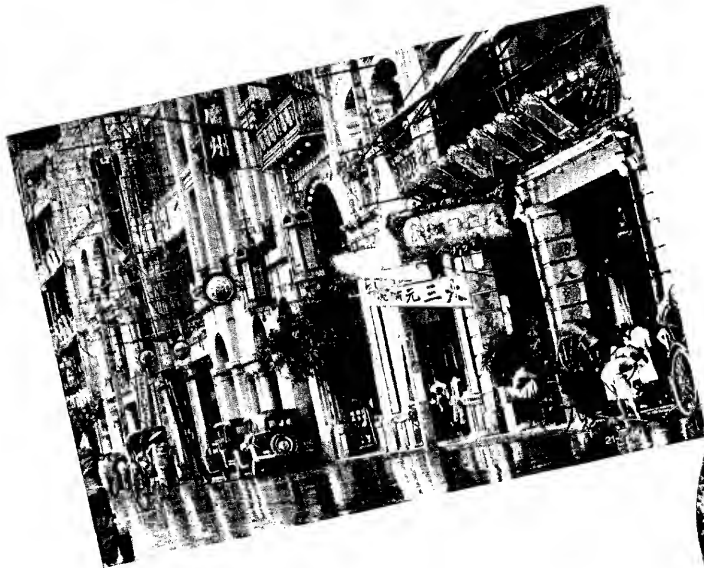
Inola	Malaga	Pavntis	Satanov	Uzora
Ilwuy	Mantova	Pleven	Sermide	Veliki Beckerek
Jelgava	Mariampole	Polesella	Skrivany	Volano
Jucica	Melnik	Ripiceni	Szerencs	Wissington
Konstantinovka	Mitrovica	Zatec	Tovačov	Zakrozwiek
rasnoje	Molinella	San Rafael	Trnava	Zarozani
onstadt	Nitra	Santes	Troellegborg	Zupanja
le	Odessa	Sarkad	Usak	
Enzi	Panevezys			



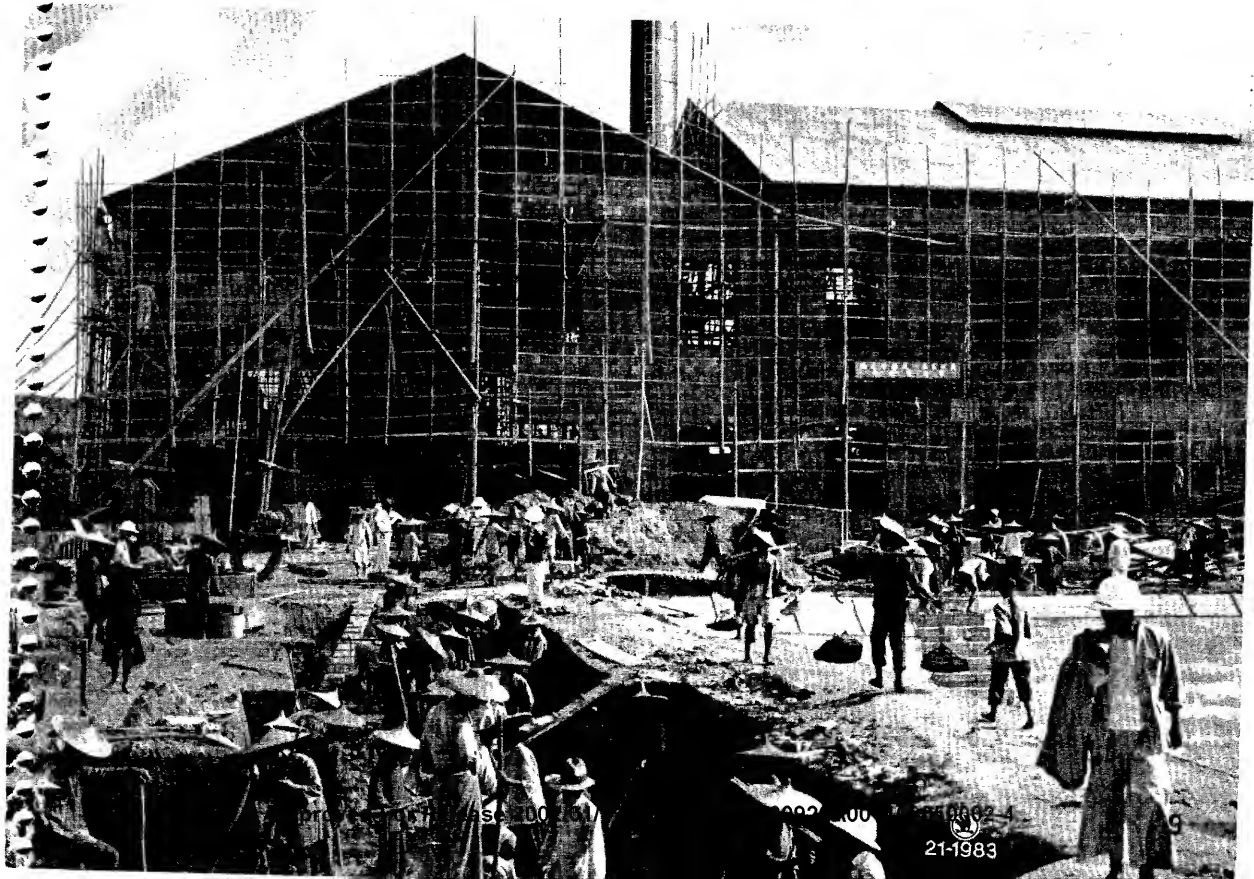




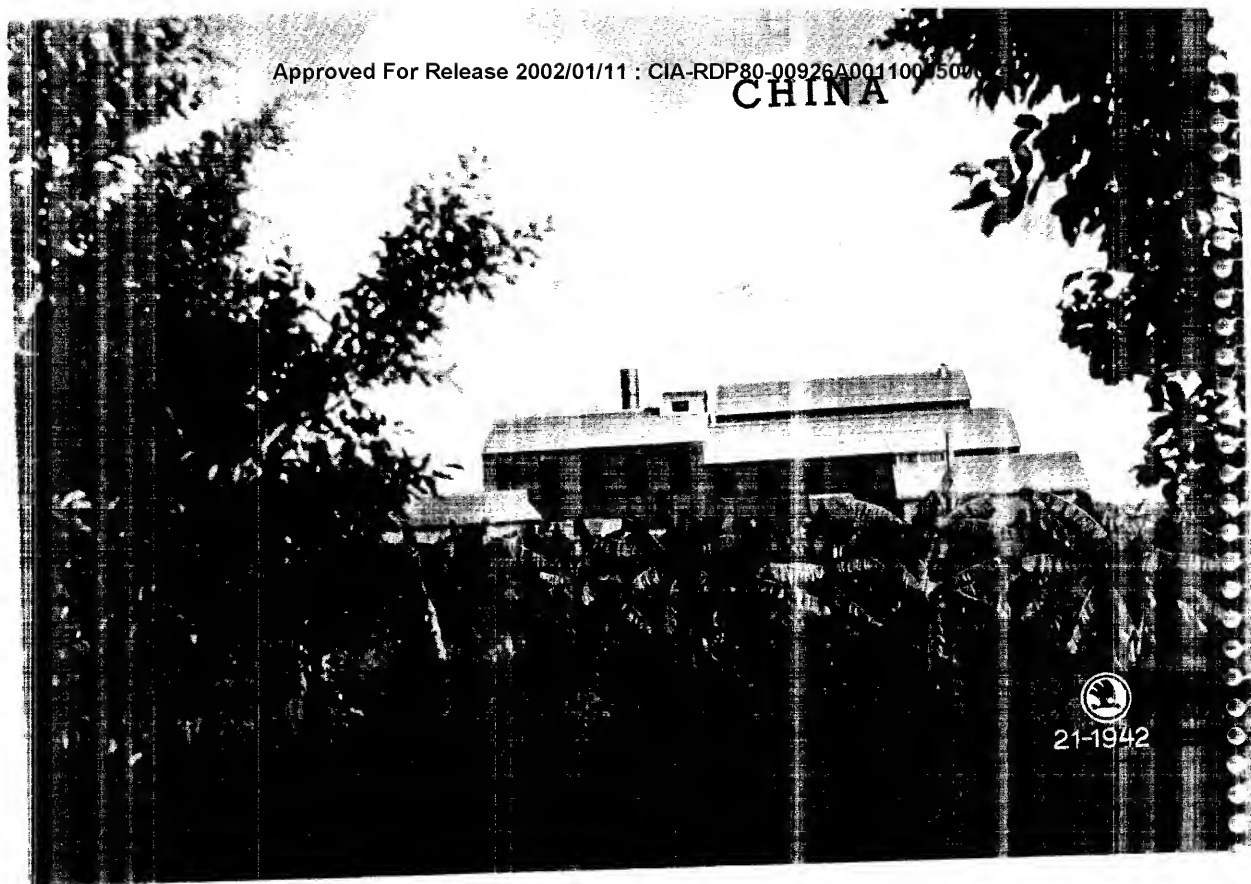
CHINA



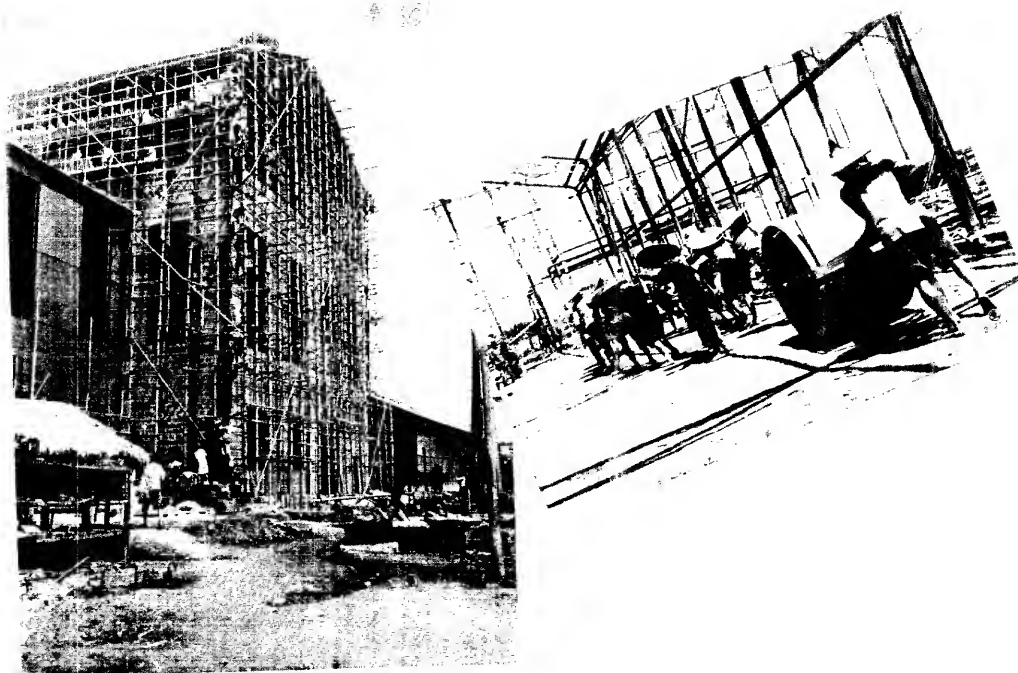
Cane Sugar Mill, Tung-Koon (Kwantung).
Daily capacity 1000-1200 t.



CHINA



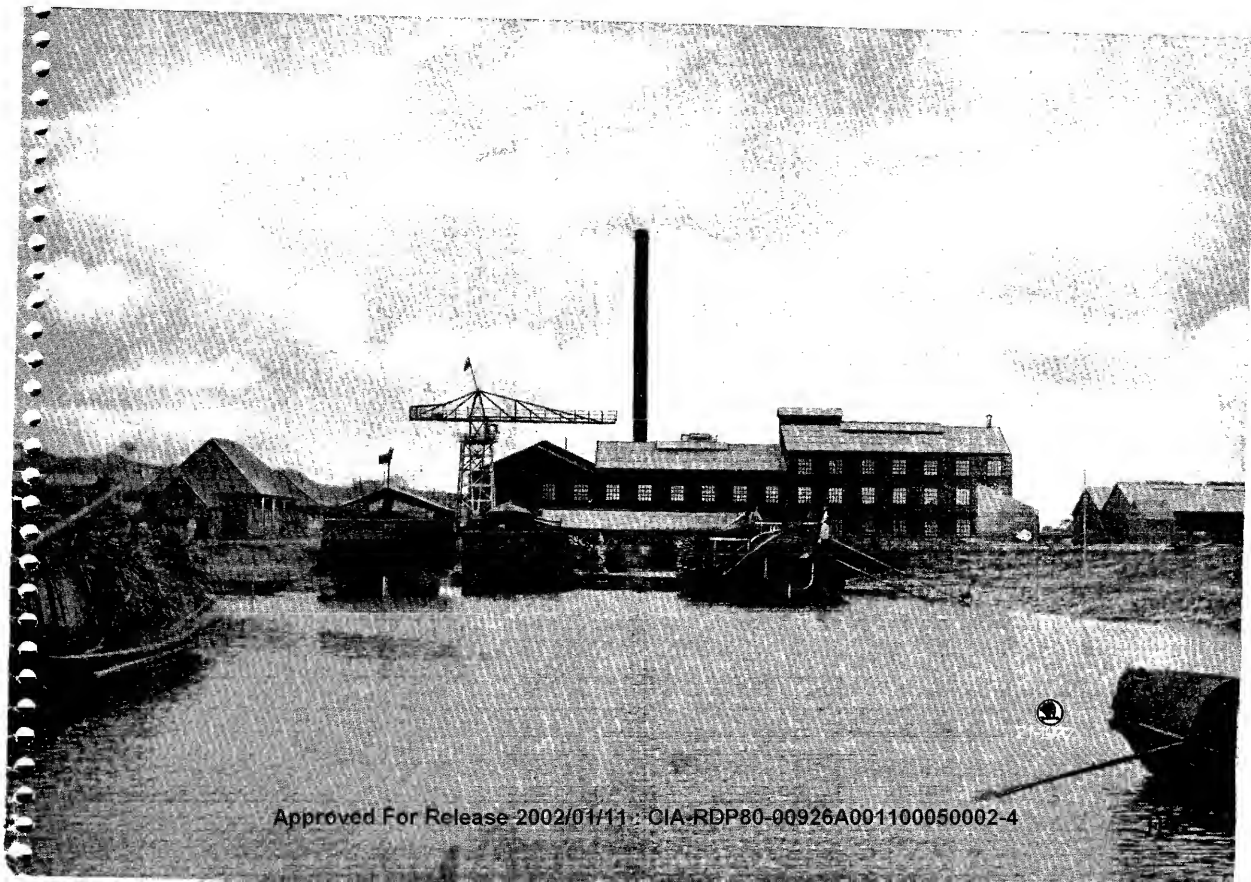
Cane Sugar Mill, Shuntak (Kwantung). Daily capacity 1000-1200 t.



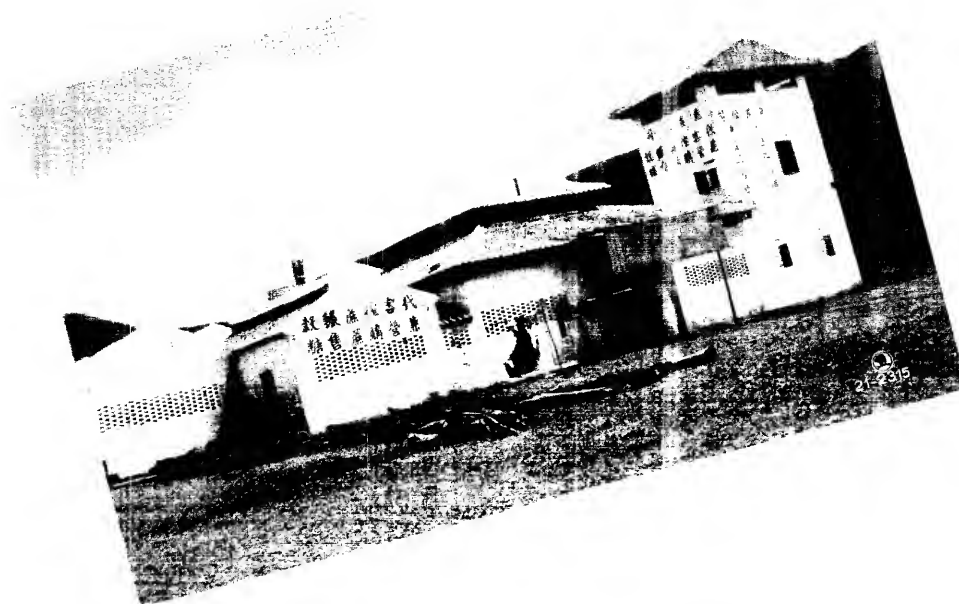
CHINA



Cane Sugar Mill Sze-Tow (Kwantung). Daily capacity 3000 t.



CHINA

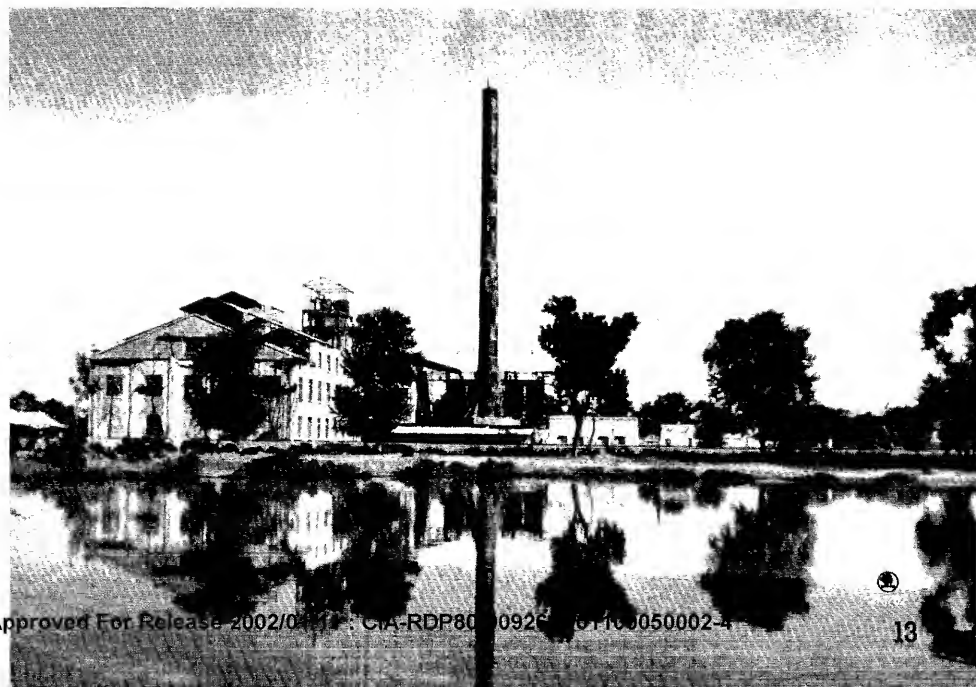


Cane Sugar Mill Jung-Kee (Kwantung).



BRITISH INDIA

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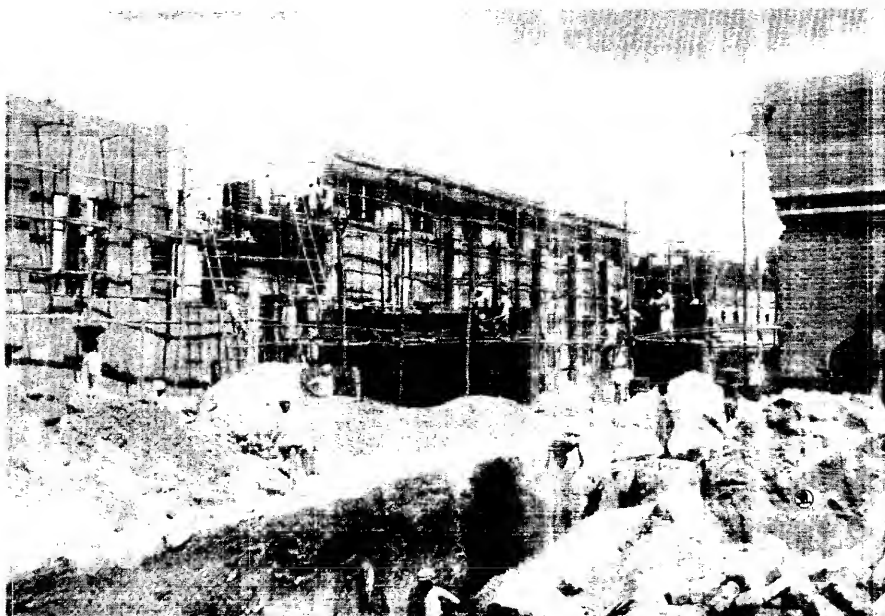
Cane Sugar Mill Amritsar (United Provinces). Daily capacity 800-1000 t.

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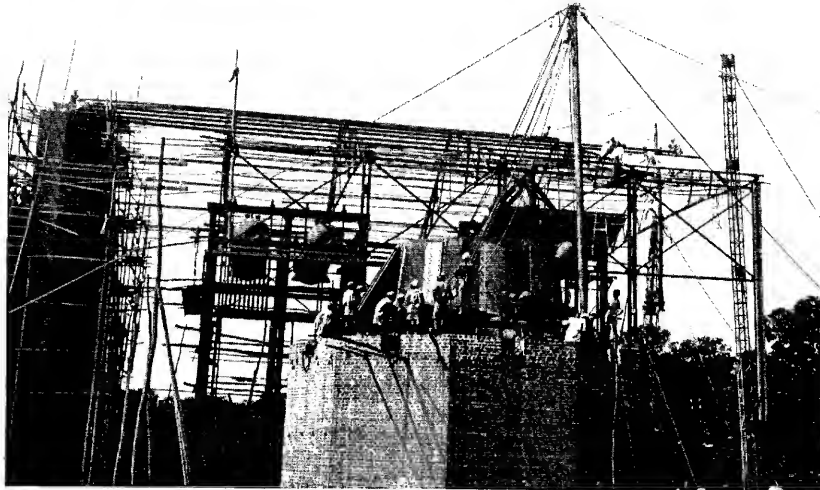
BRITISH INDIA



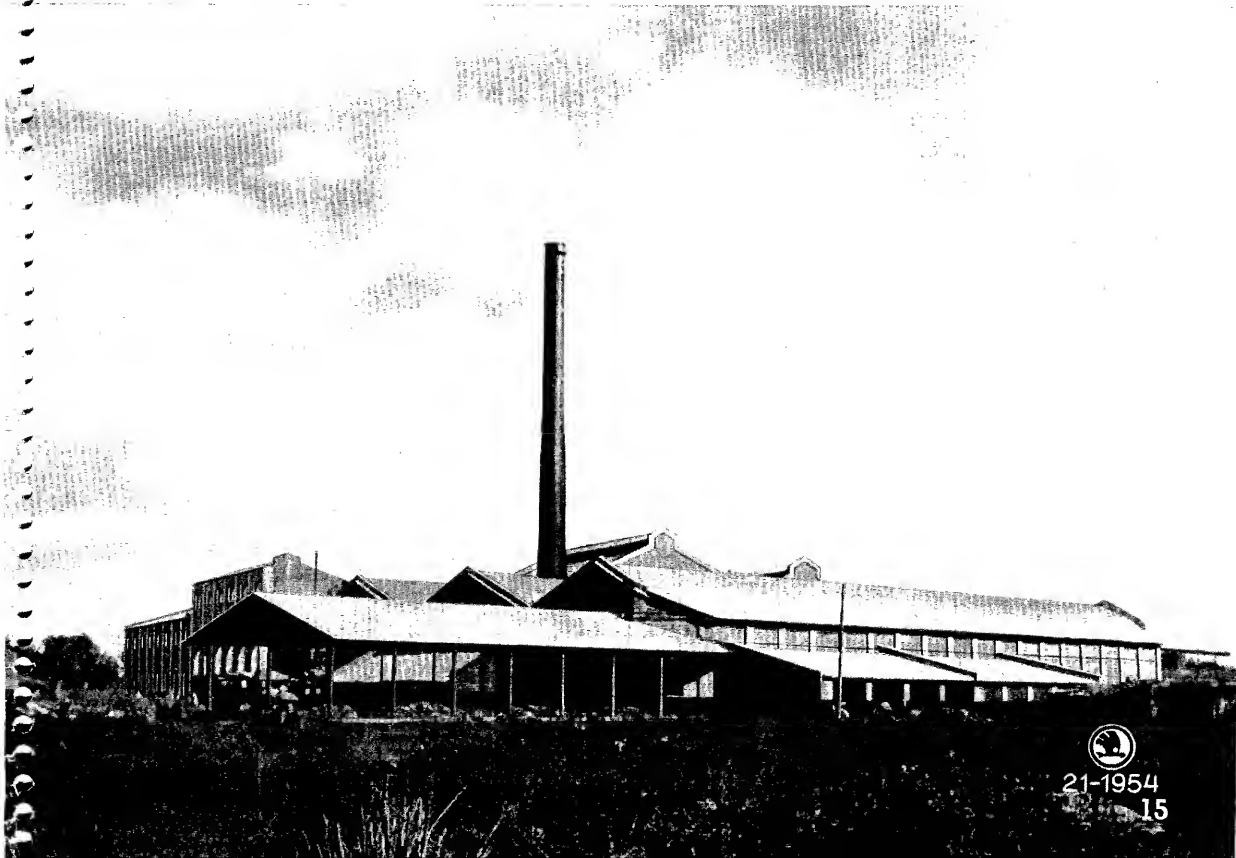
Cane Sugar Mill Camlapat (United Provinces).
Daily capacity 800 t.



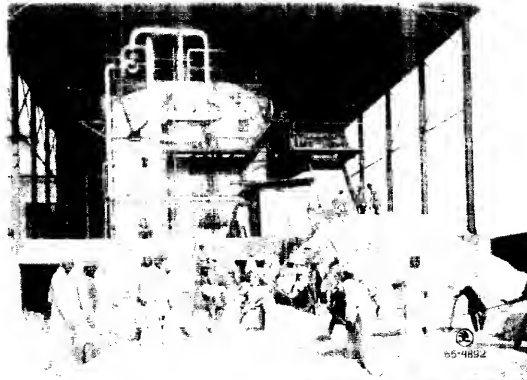
BRITISH INDIA



Cane Sugar Mill Gutaya (Central Provinces).
Daily capacity 800 t.



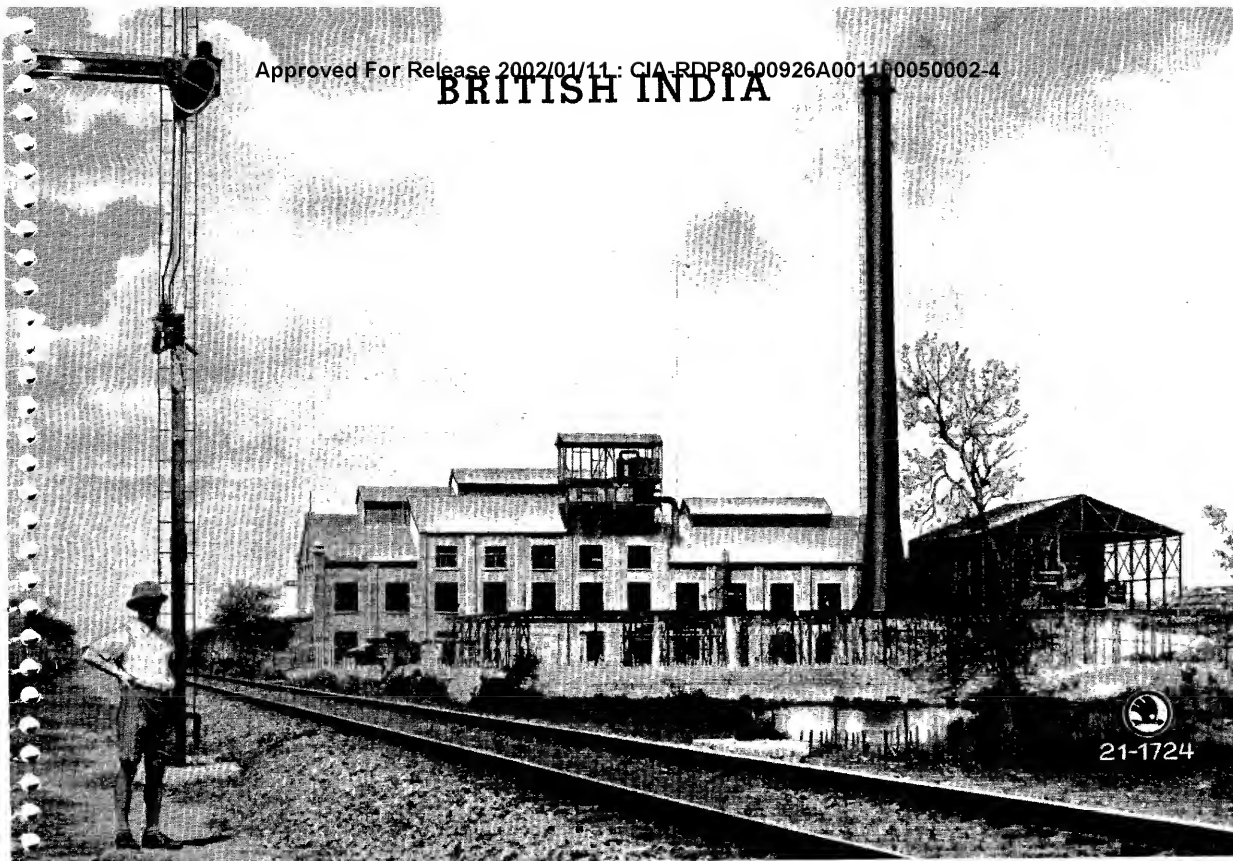
BRITISH INDIA



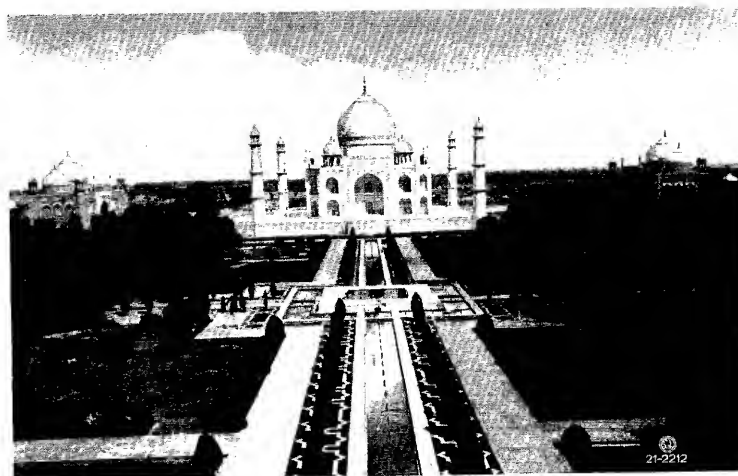
Cane Sugar Mill in United Provinces Daily capacity 700 c



BRITISH INDIA



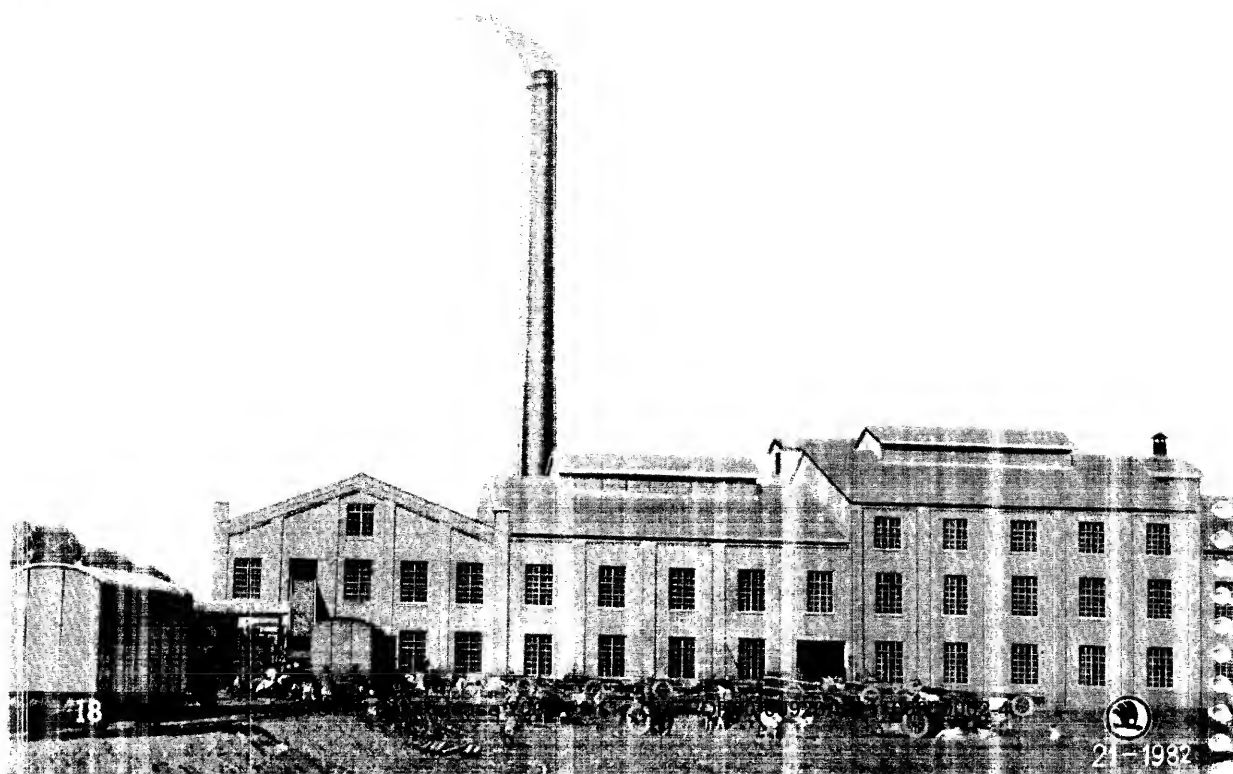
Cane Sugar Mill Amritsar (United Provinces). Daily capacity 800 — 1000 t.



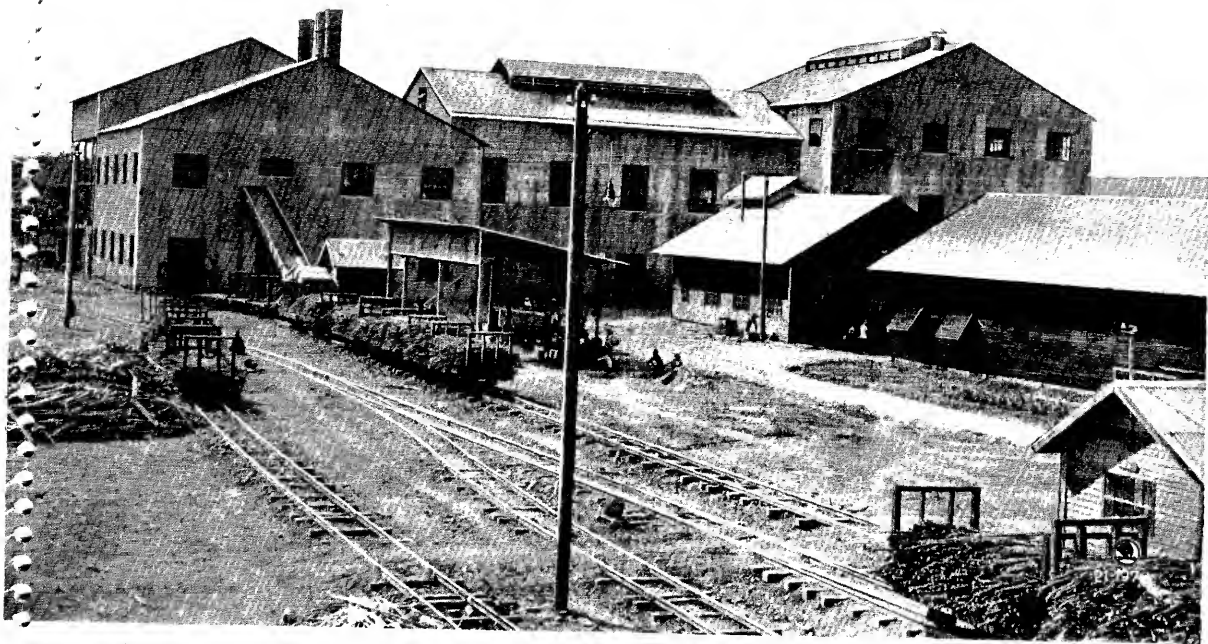
BRITISH INDIA



Sugar Mill, Harinagar, Bihar. Daily capacity 1200 t.



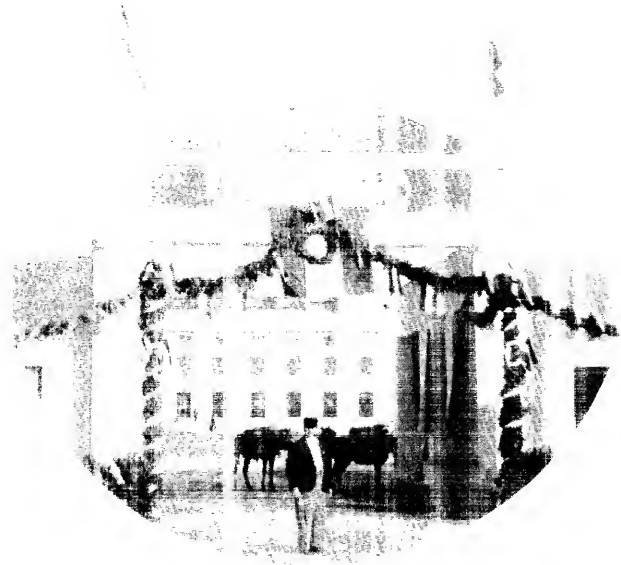
SIAM



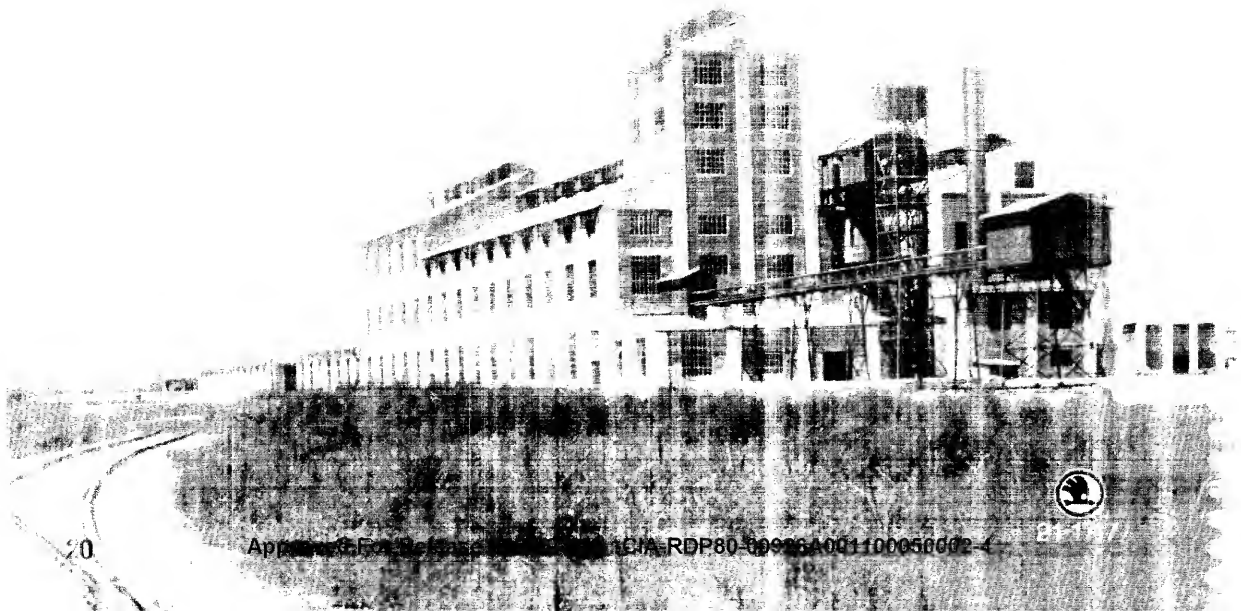
Cane Sugar Mill Lampang. Daily capacity 700 t



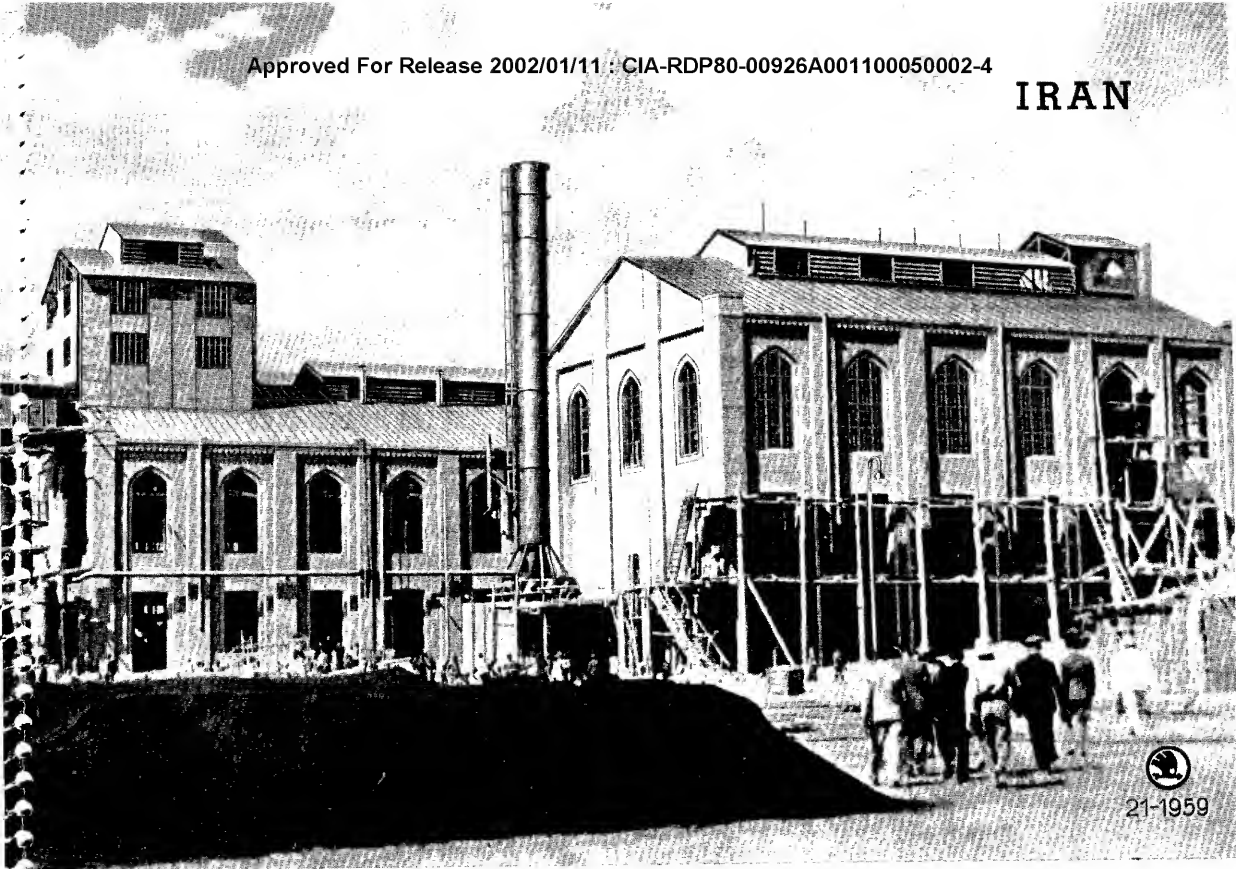
RAN



13. The Great Mosque, Meshed (Khorasan). Its tower is 500 ft.

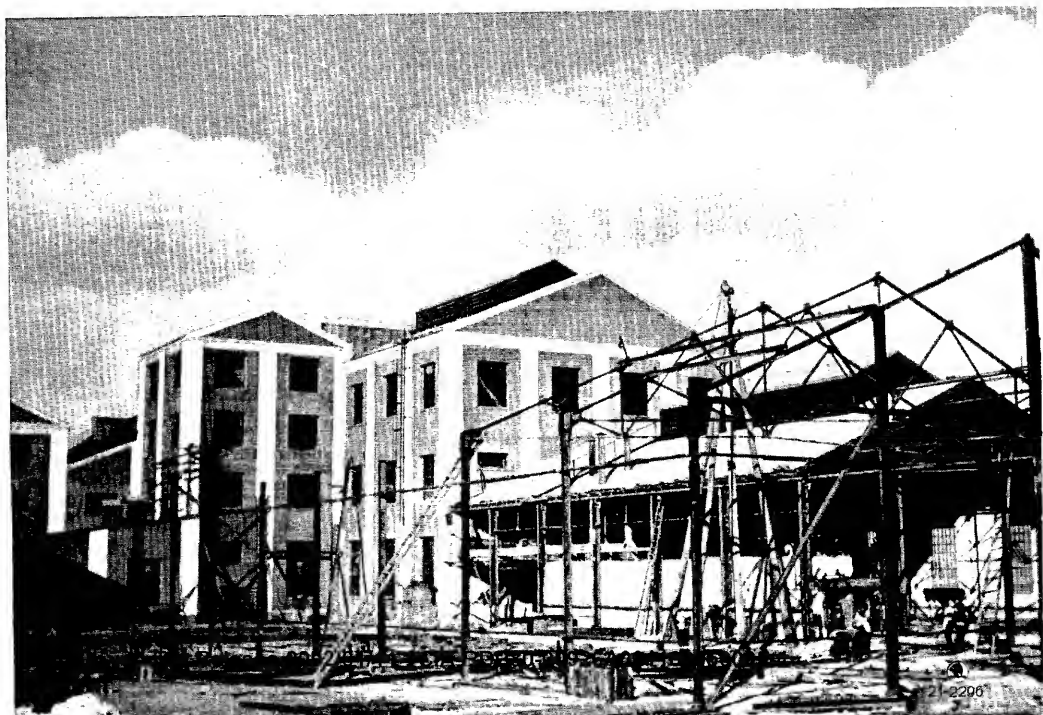


IRAN



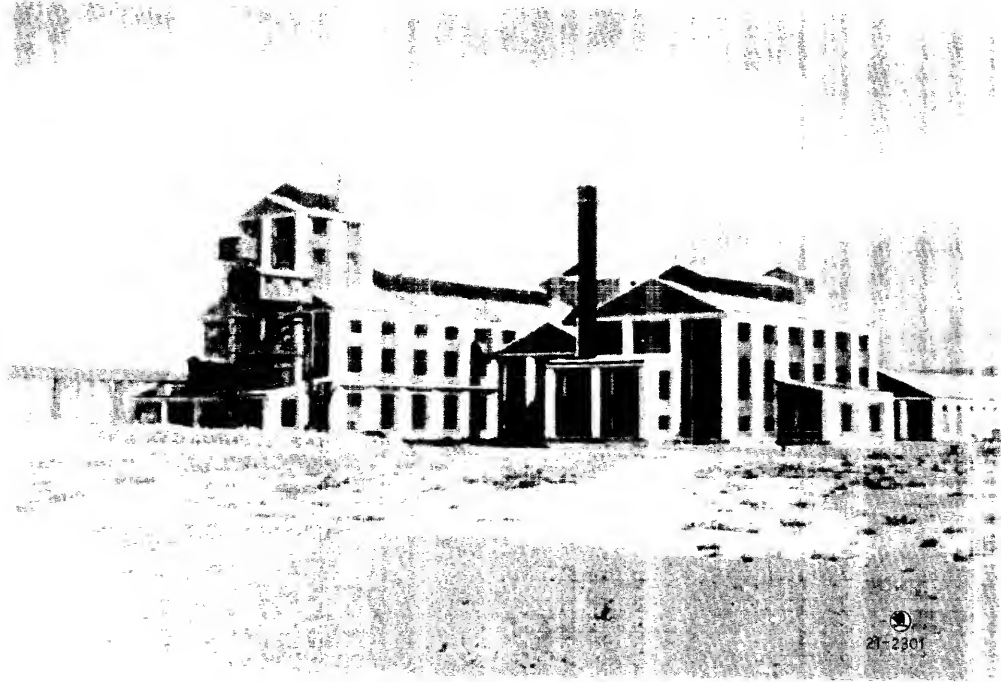
Beet Sugar Factory Veramin (Teheran). Daily capacity 500 t.

Beet Sugar Factory Maw-Dacht (Shiras). Daily capacity 500 t.

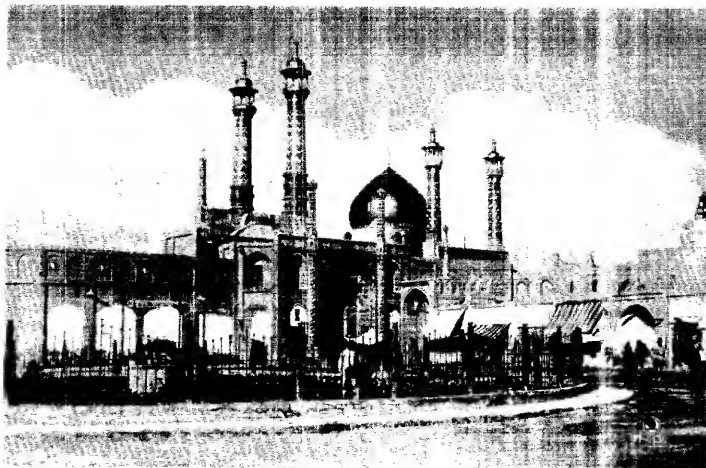


IRAN

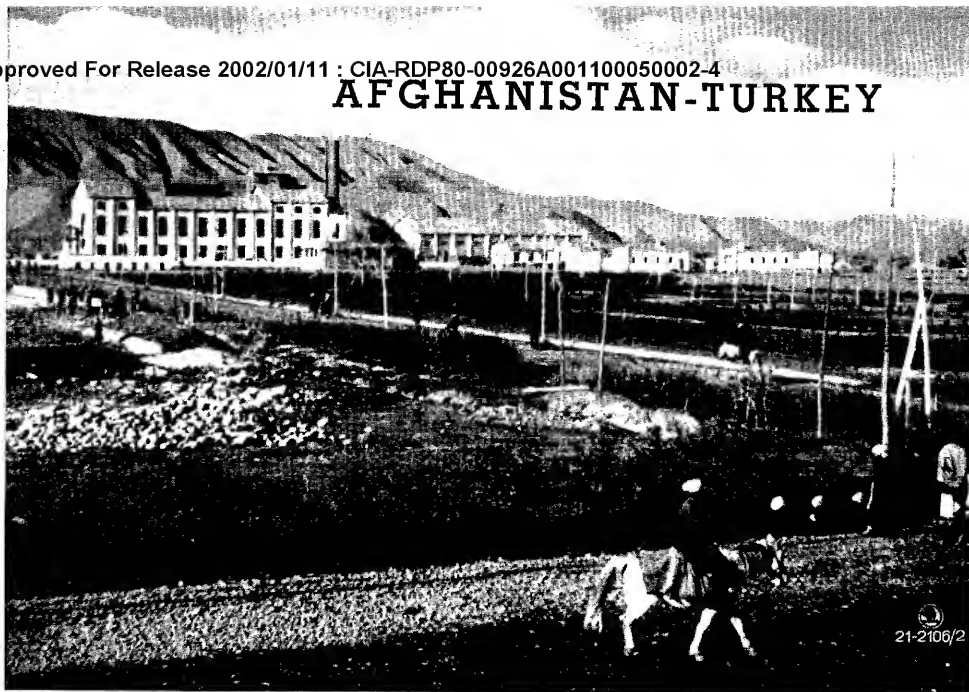
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300 Sugar Factory Miandoab (Tabriz). Daily capacity 500 c.



AFGHANISTAN-TURKEY

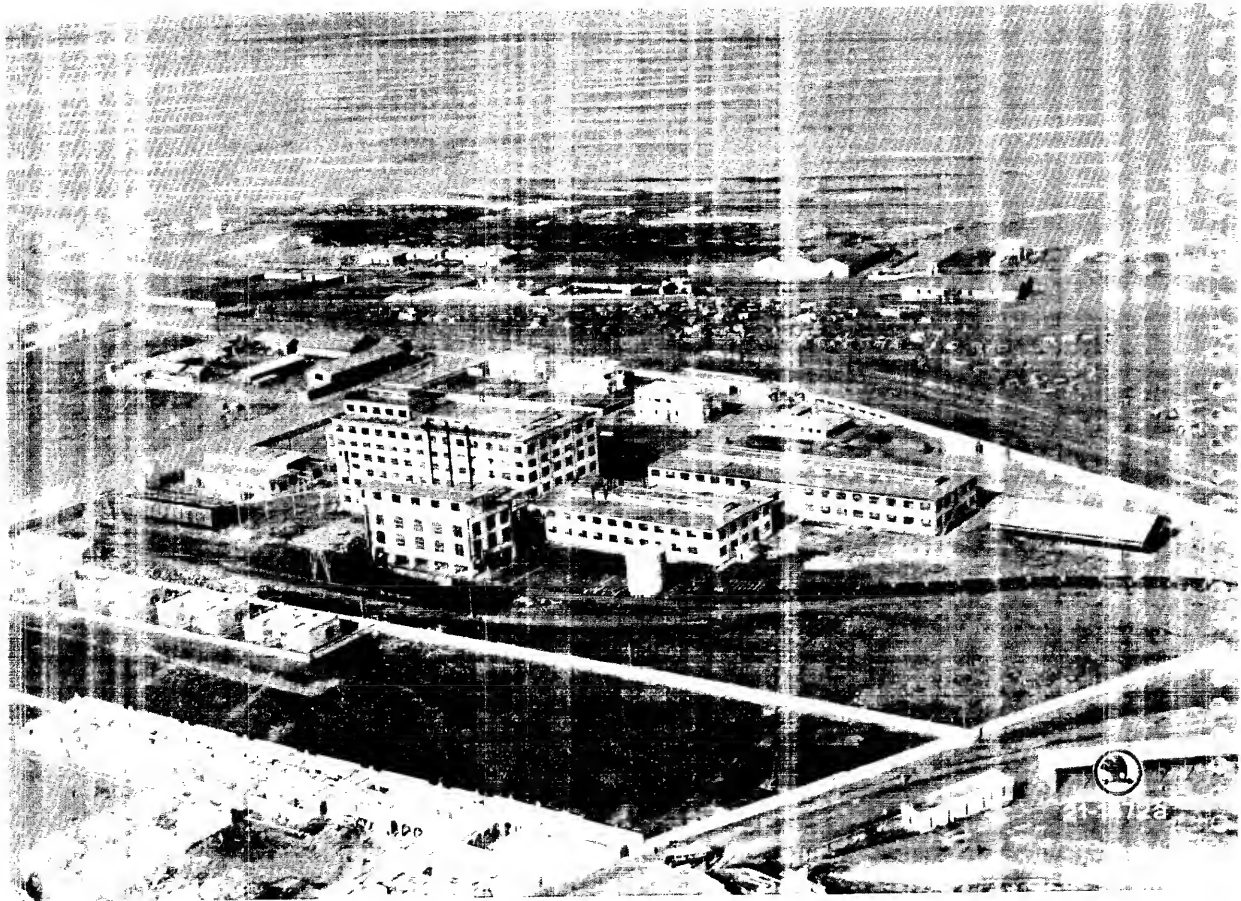


Beet Sugar Factory Baghlan (Afghanistan). Daily capacity 600—700 t.



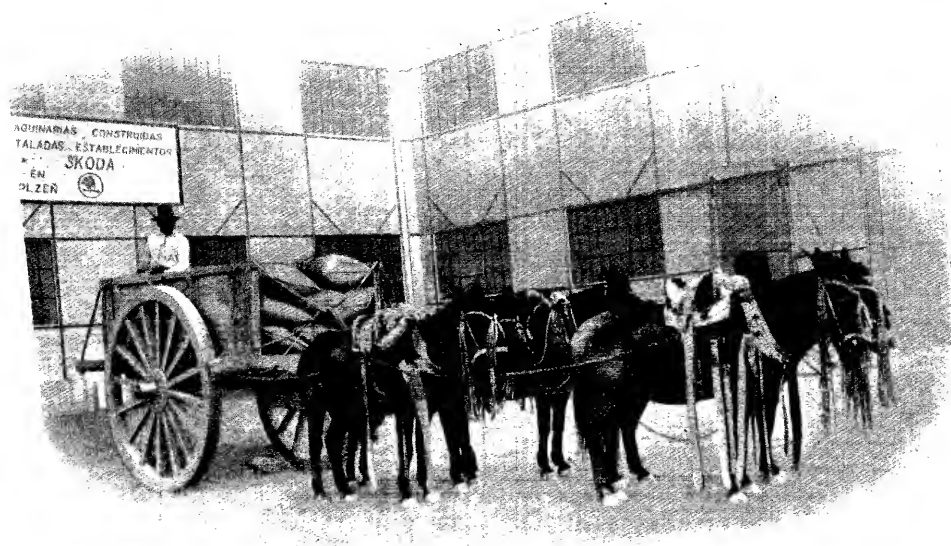
Beet Sugar Factory
Usak (Turkey). Daily
capacity 800—1000 t.

MAROCOCO

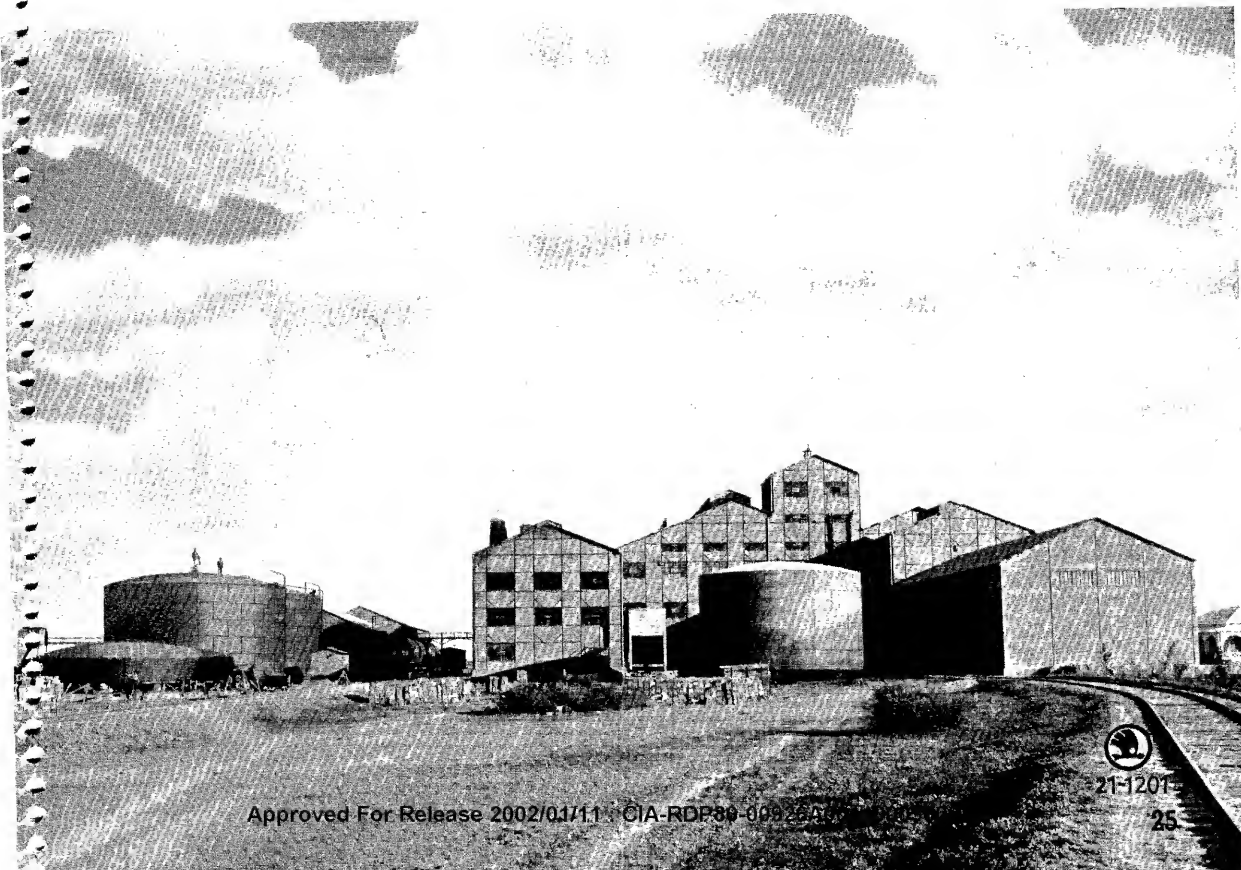


Sugar Refinery, Casablanca. Daily capacity 250 t of refined sugar.

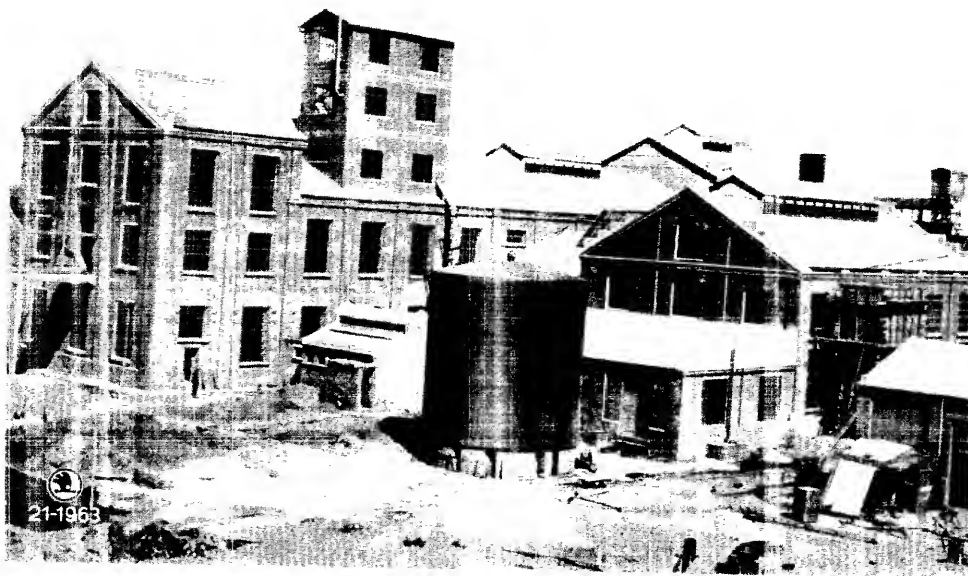
ARGENTINA



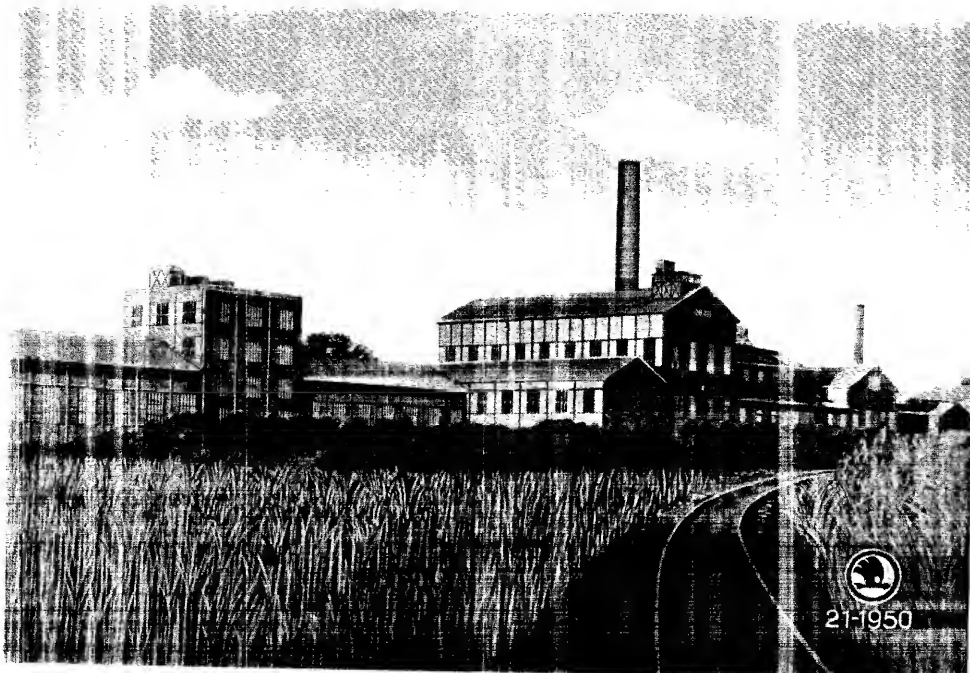
Beet Sugar factory Cuyo. Daily capacity 1000 t.



ARGENTINA-BRAZIL



B Beet Sugar Factory
San Lorenzo (Argentina).
Daily capacity 400 t.

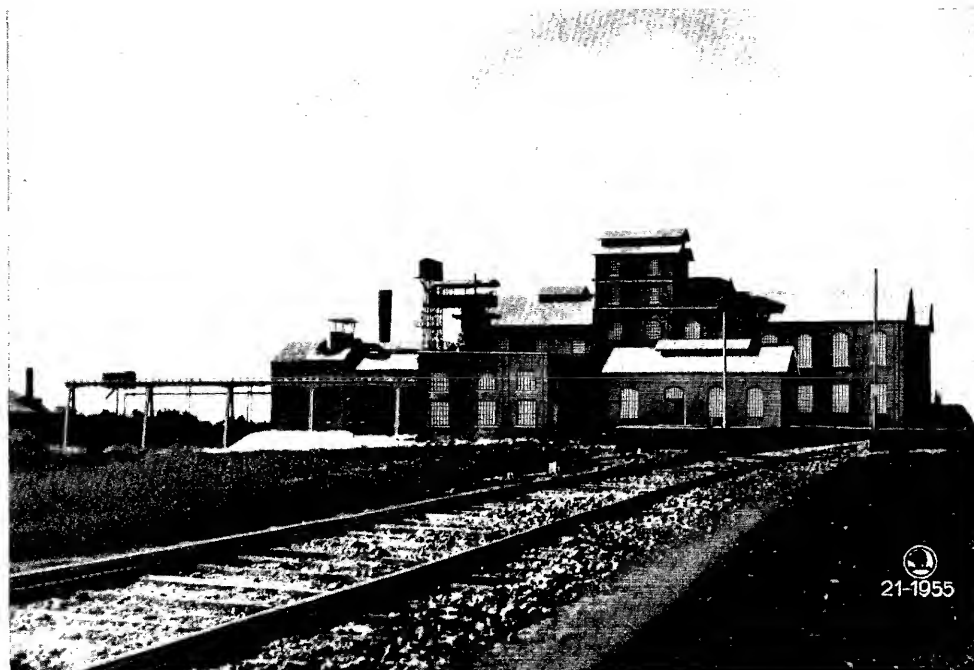


C Cane Sugar Mill
Junqueira (Brazil).
Daily capacity 1200 t.

EUROPEAN COUNTRIES

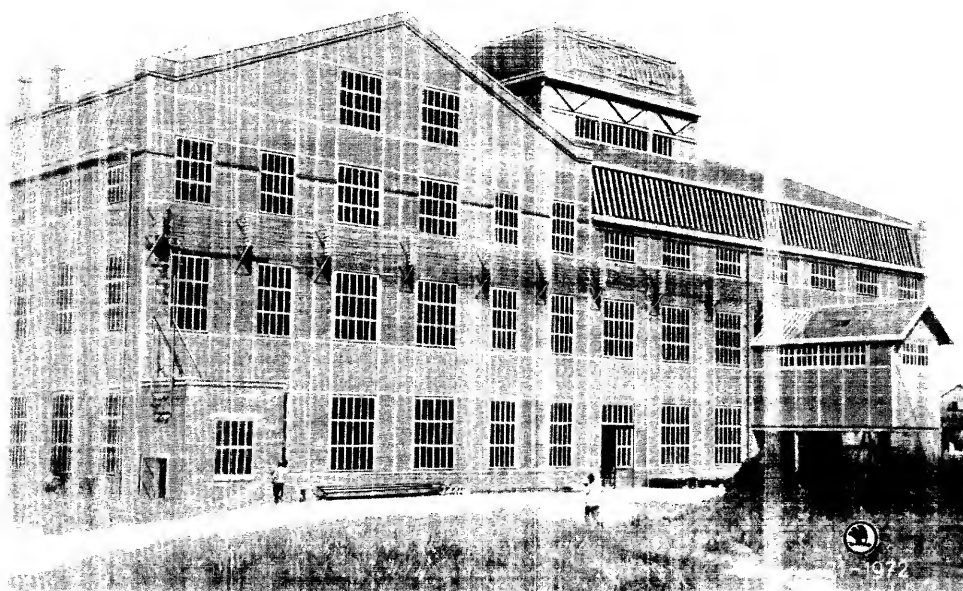


Beet Sugar Factory
Alagon (Spain).
Daily capacity 500 t.

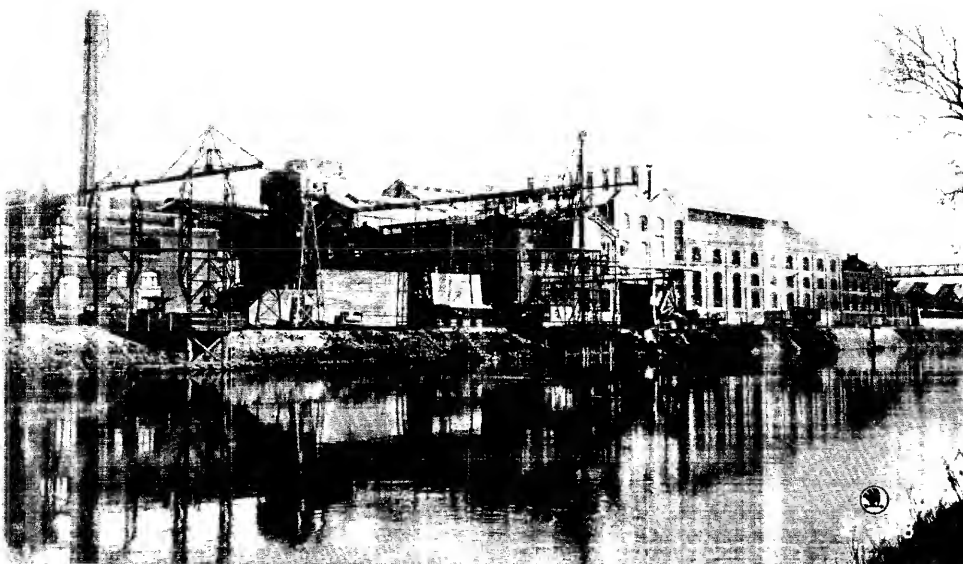


Beet Sugar Factory
San Rafael (Spain).
Daily capacity 1000 t.

EUROPEAN COUNTRIES

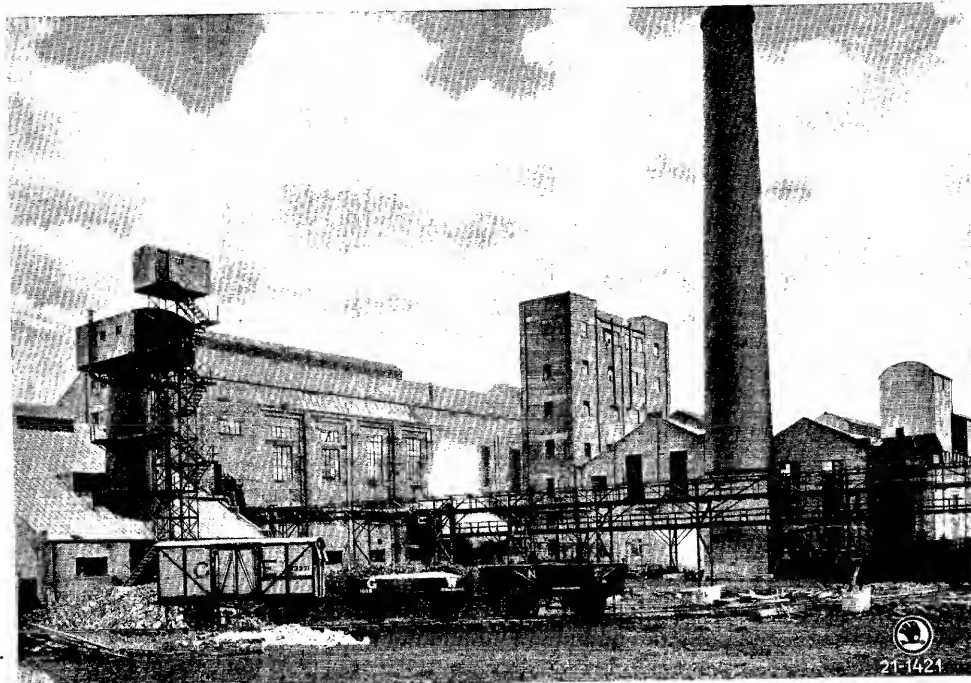


Beet Sugar Factory
Eucalyptus, Hainan, China
Daily capacity 1000

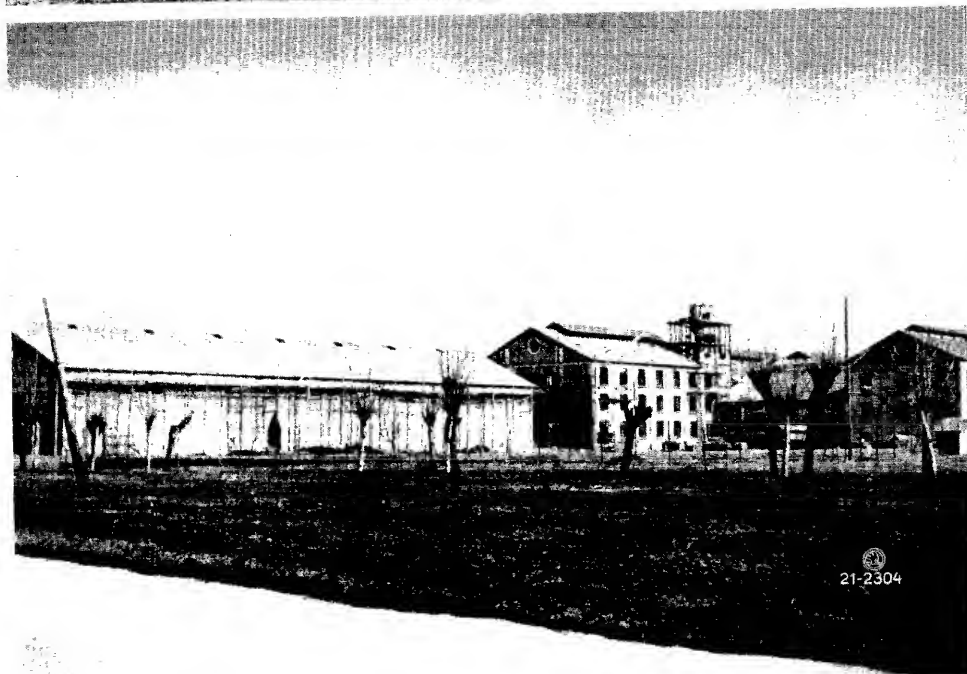


Beet Sugar Factory
de Wanzel (Belgium)
Daily capacity 14000

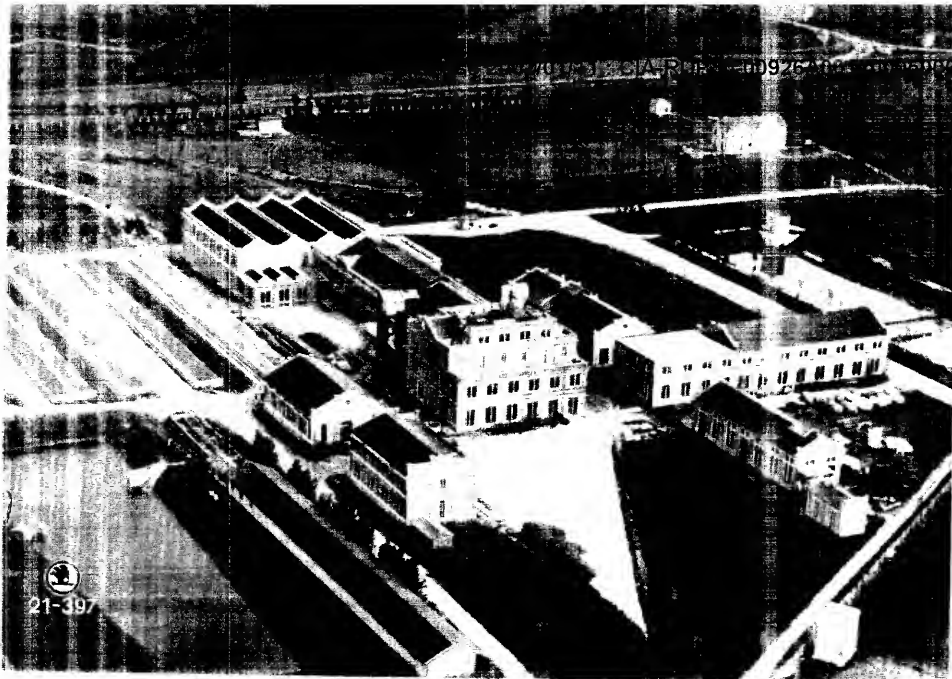
EUROPEAN COUNTRIES



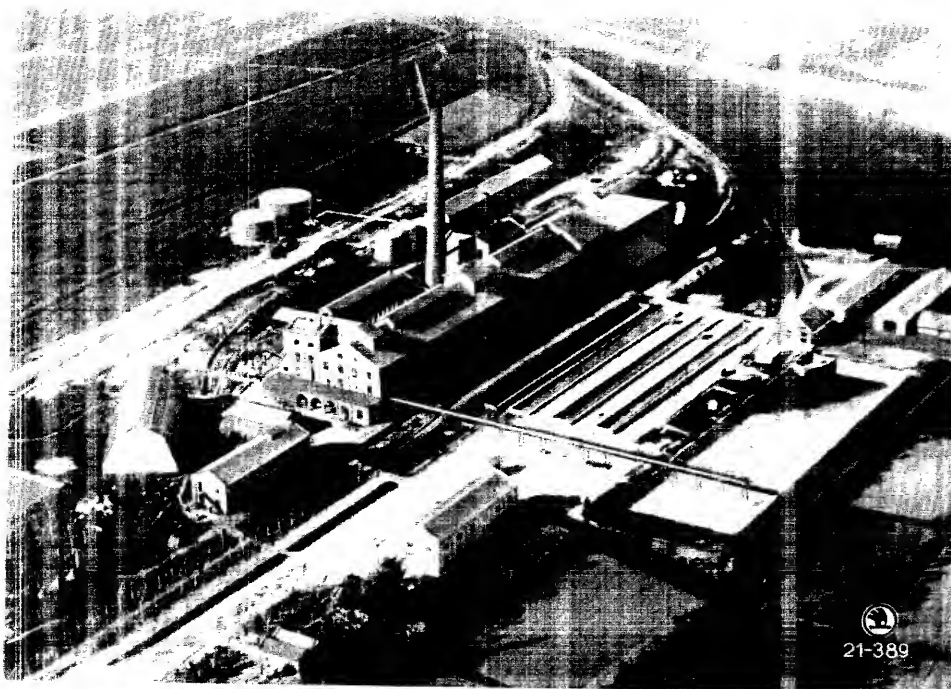
Beet Sugar Factory
Wissington (England).
Daily capacity 1600 t.



Beet Sugar Factory
d'Este (Italy).
Daily capacity 700 t.

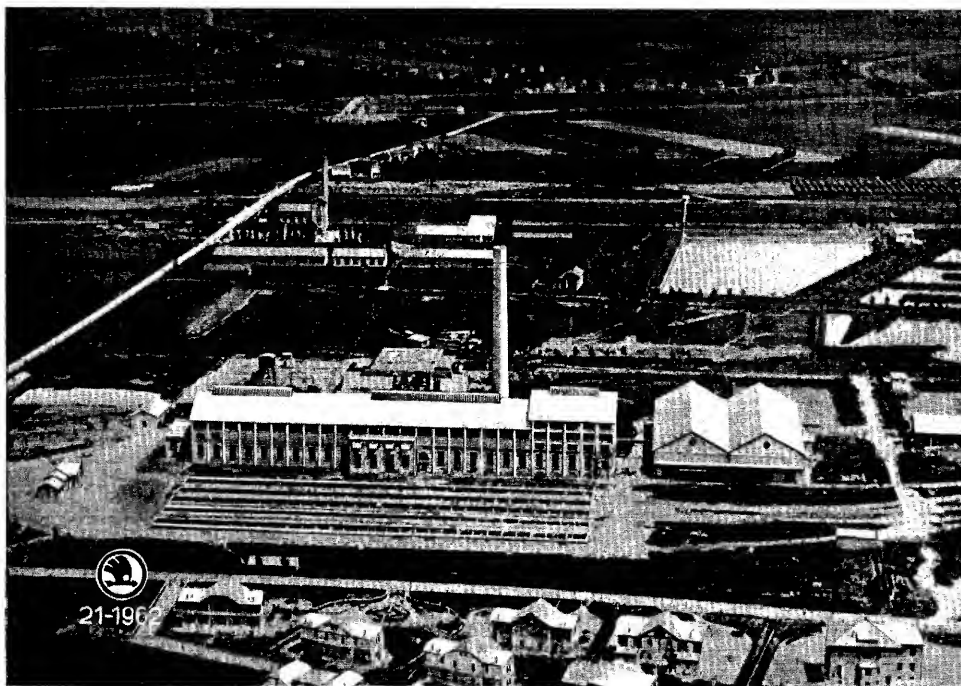


Beet Sugar Factory Bondono
(Italy). Daily capacity 1000 t.



Beet Sugar Factory Bondono
(Italy). Daily capacity 1000 t.

EUROPEAN COUNTRIES

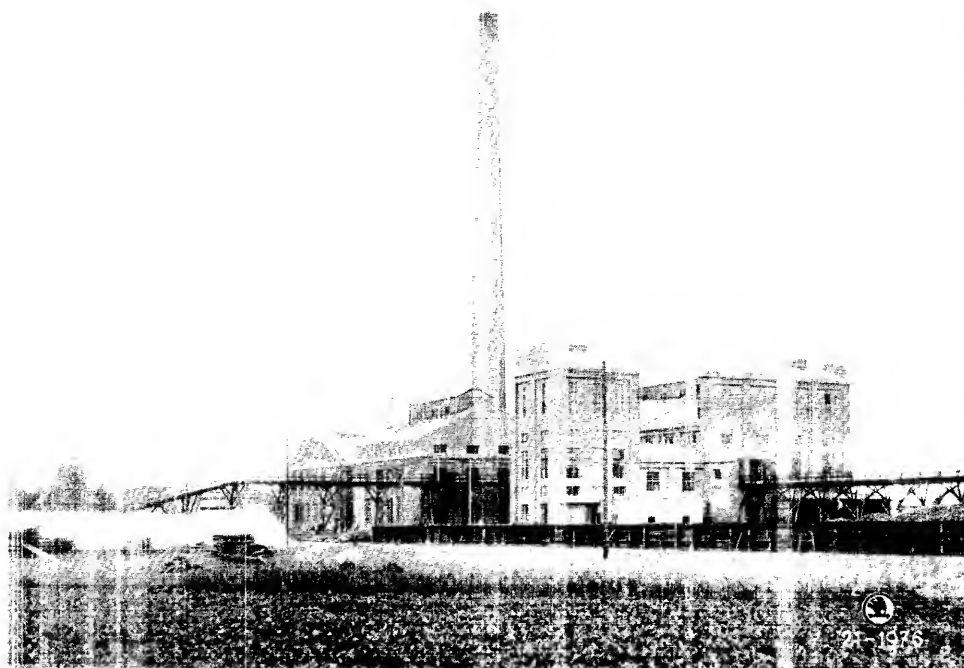


Beet Sugar Factory and Refinery Molinella (Italy). Daily capacity 1000 t of sugar beet.

Beet Sugar Factory Arquà (Italy). Daily capacity 400 t.



EUROPEAN COUNTRIES

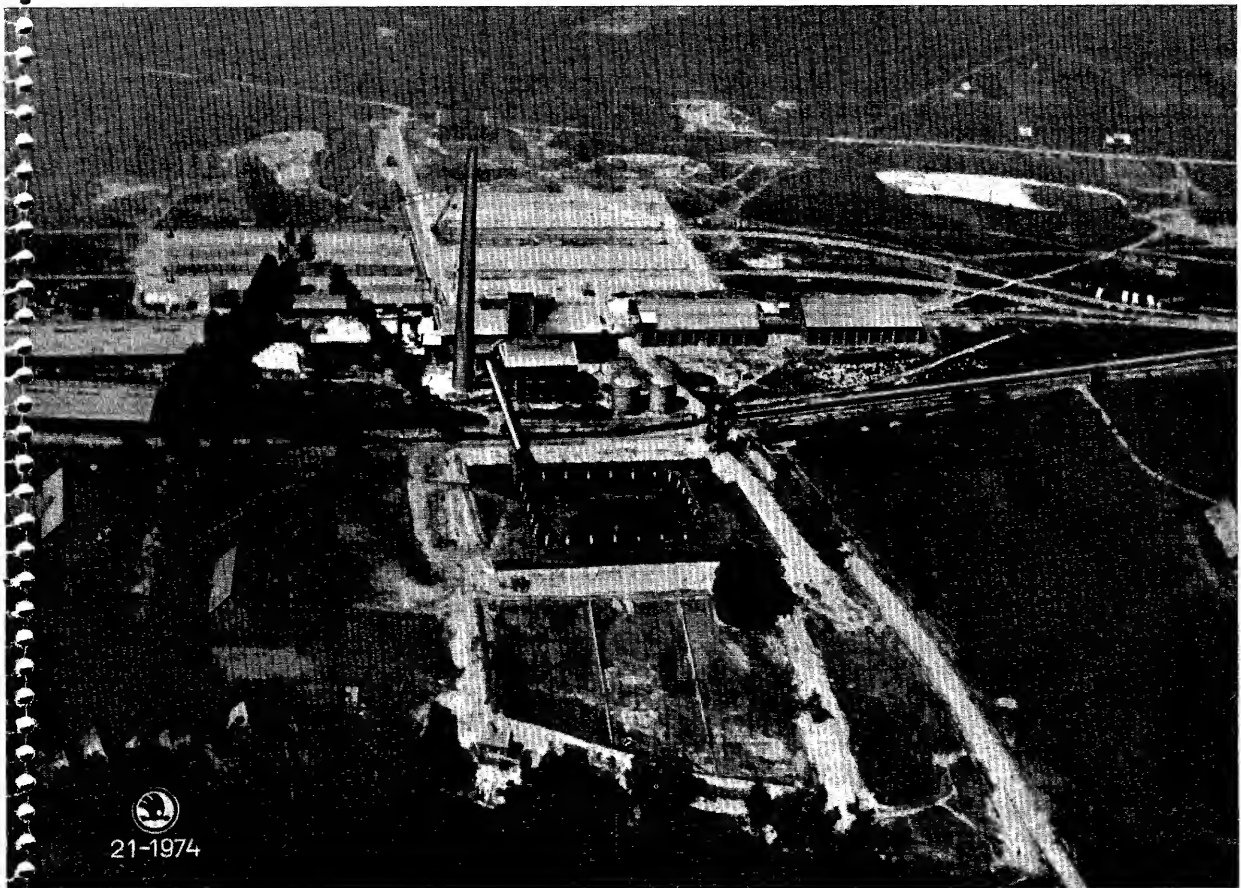


Beet Sugar Factory
Antrea (USSR).
Daily capacity 800 t.



Beet Sugar Factory
Marijampole (USSR).
Daily capacity 1000-1200 t.

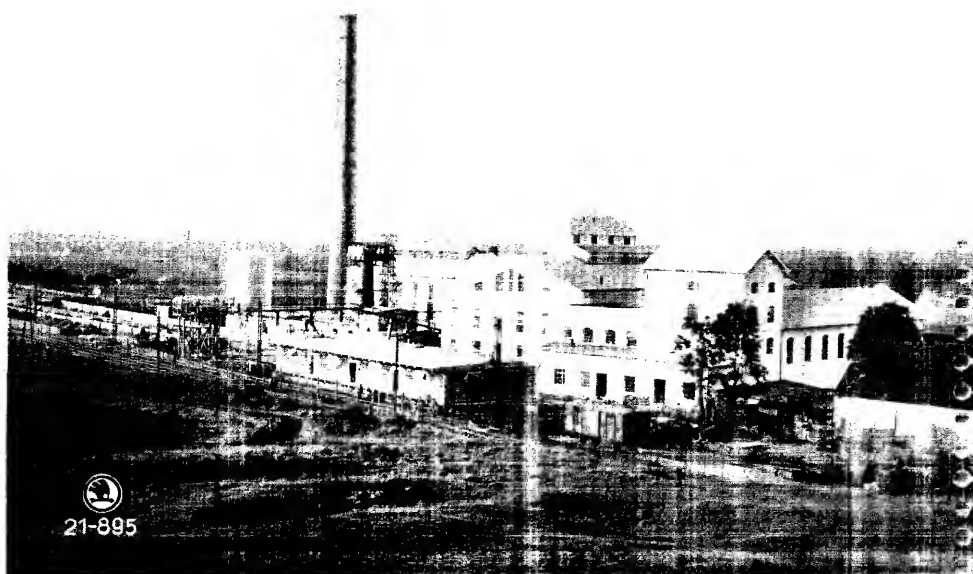
EUROPEAN COUNTRIES



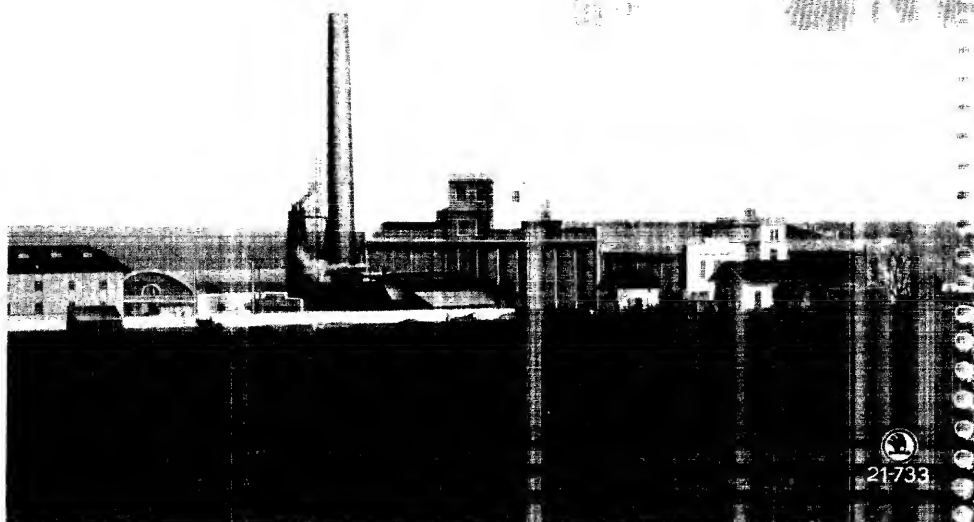
Sugar Factory and Refinery Pavenčiai (USSR). Daily capacity 1000—1200 t of sugar beet.

EUROPEAN COUNTRIES

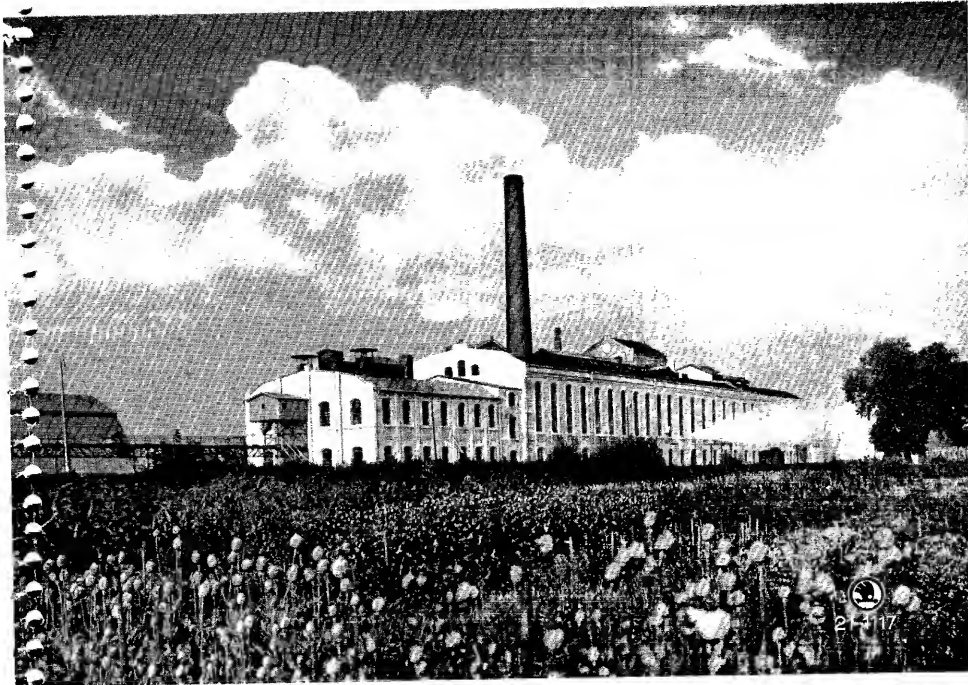
Sugar Factory
and Refinery Nitra (CSR).
Daily capacity 1000-1200 t
of sugar beet.



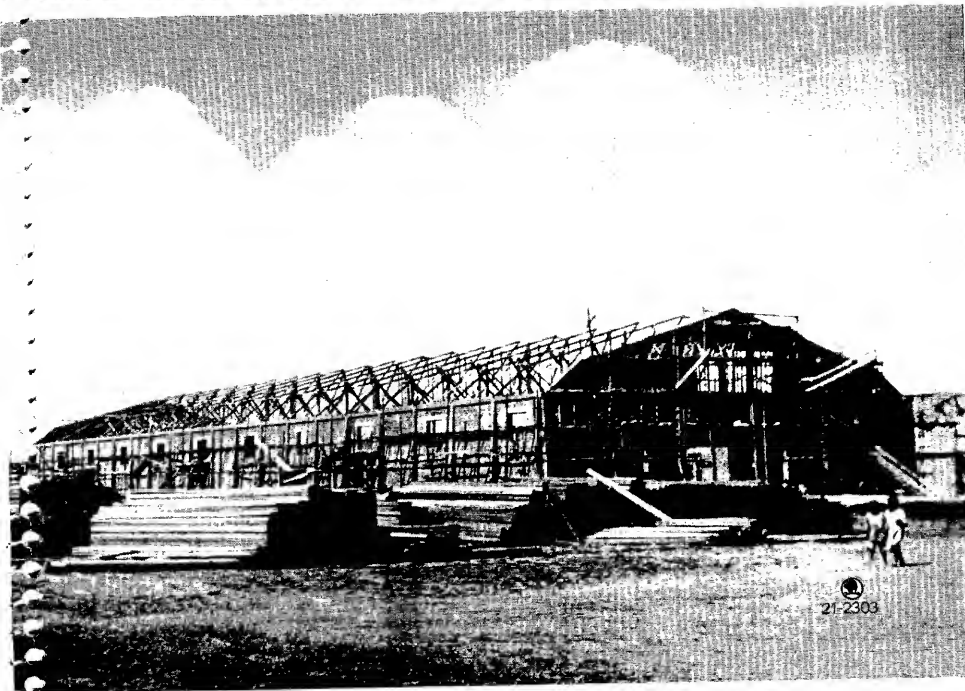
Sugar Factory
Horodenka (USSR).
Daily capacity 1300 t.



EUROPEAN COUNTRIES

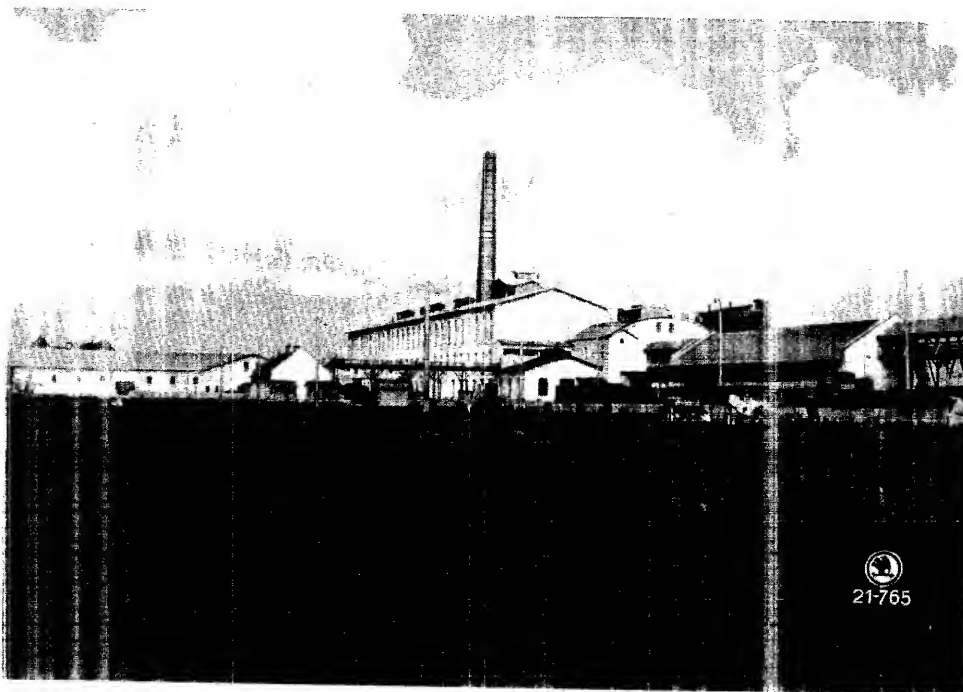


Beet Sugar Factory
Lujeni (USSR).
Daily capacity 1000 t.

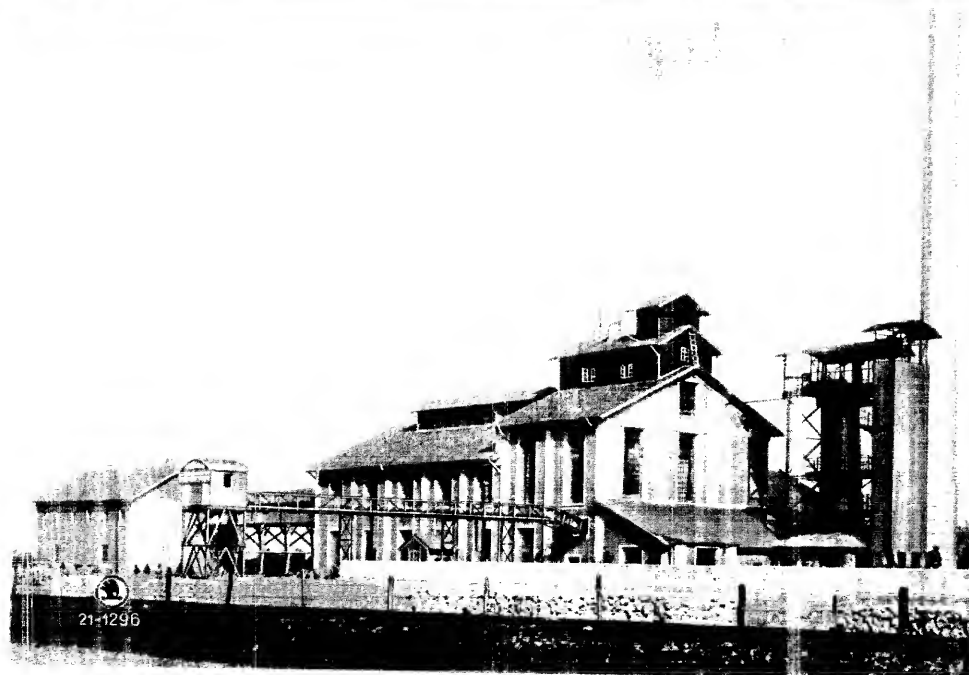


Beet Sugar Factory
Livezi (Rumania).
Daily capacity 2000 t.

EUROPEAN COUNTRIES

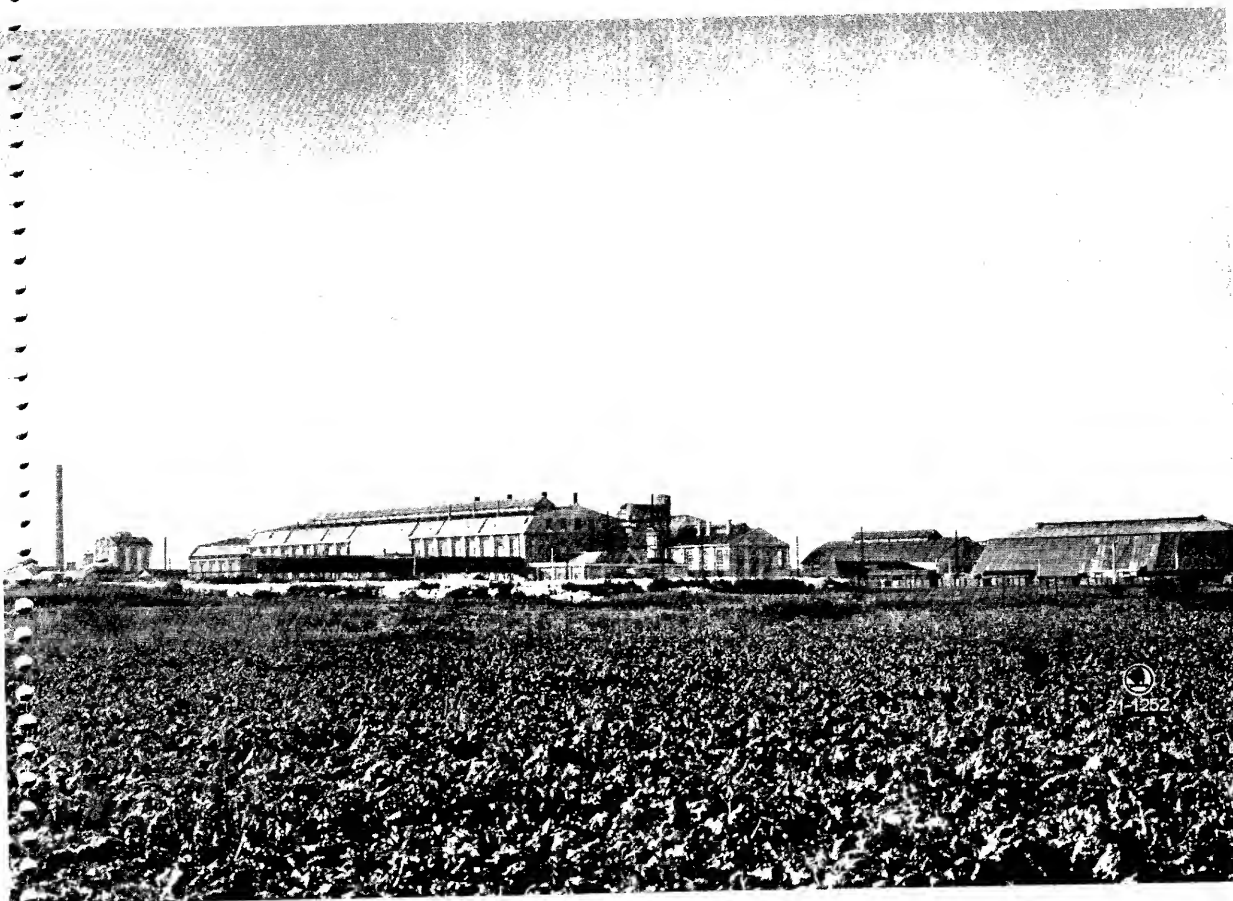


Beet Sugar Factory
in Jucica (USSR).
Daily capacity 2000 t



Beet Sugar Factory
in Jucica (USSR).
Daily capacity 2000 t

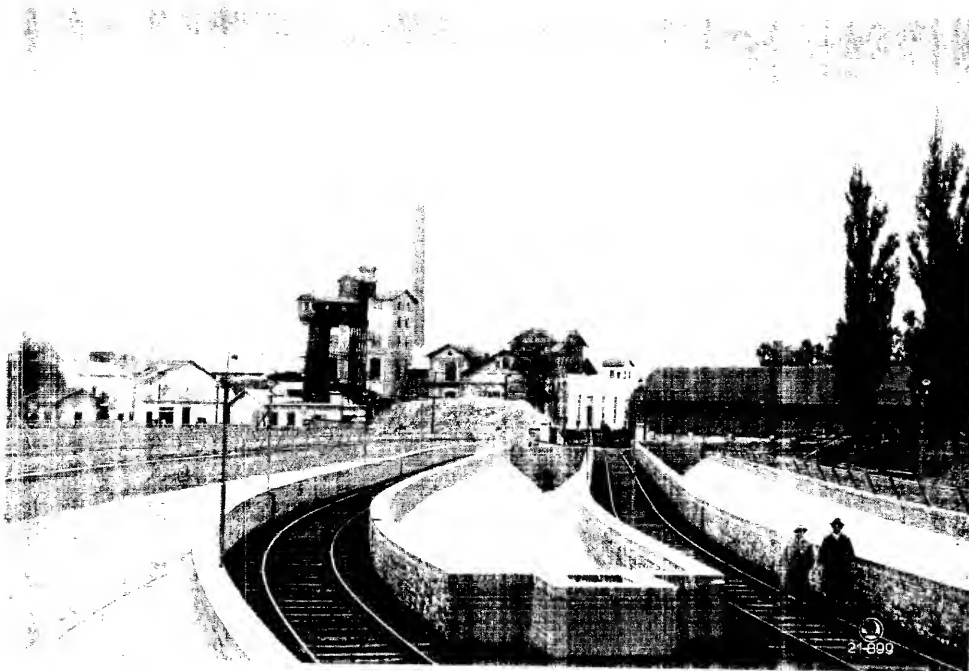
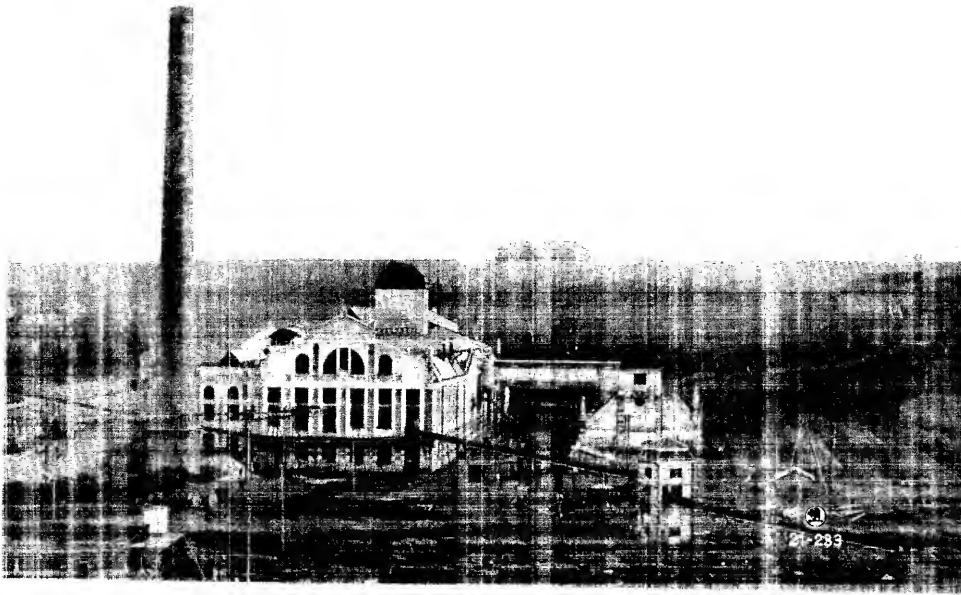
EUROPEAN COUNTRIES



Sugar Factory Crvenka (Yugoslavia). Daily capacity 1300—1500 t of sugar beet.

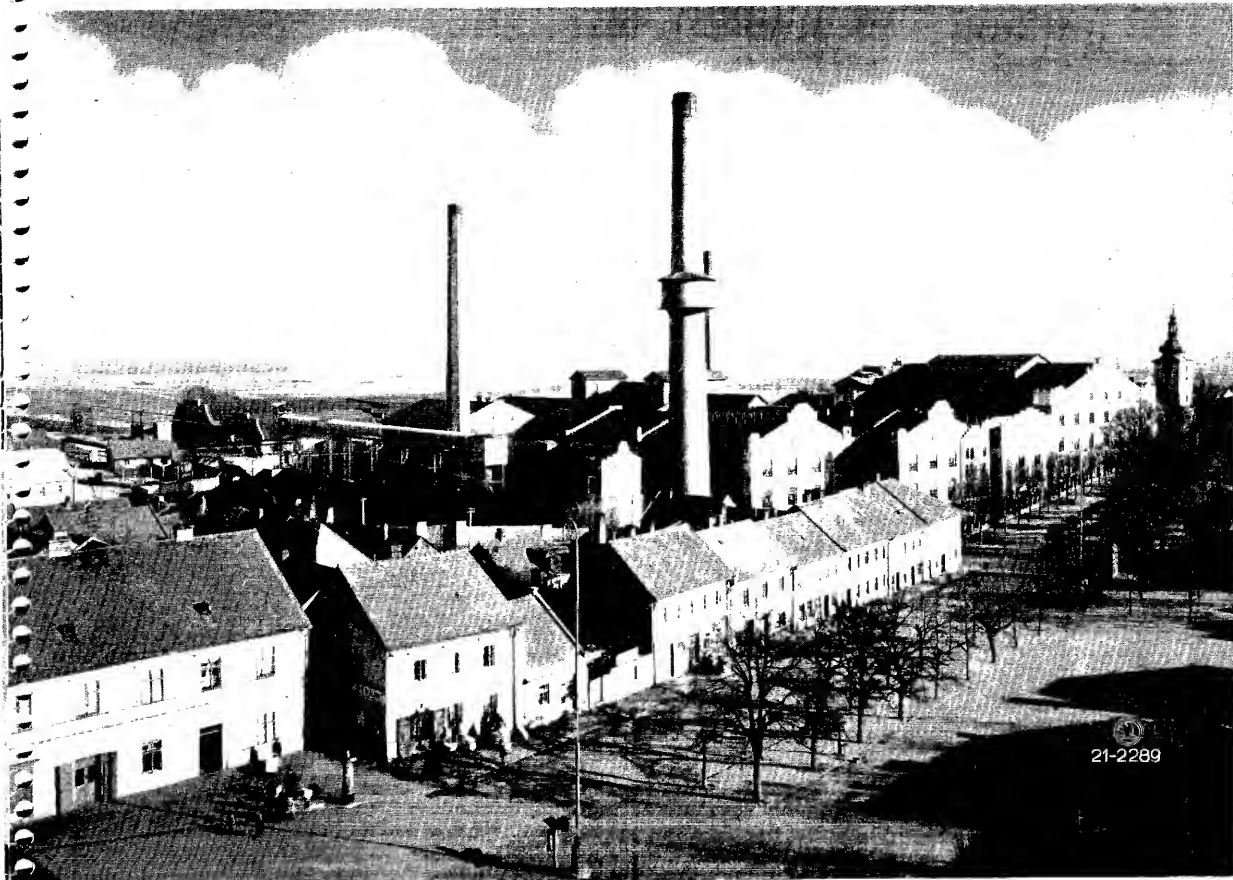
EUROPEAN COUNTRIES

Sugar Factory
Zvoleněves (ČSR).
Daily capacity
1600 t of sugar beet

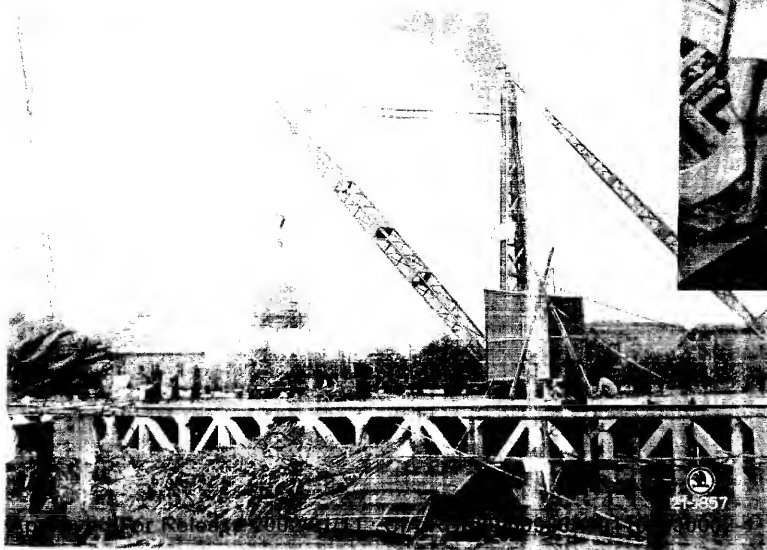
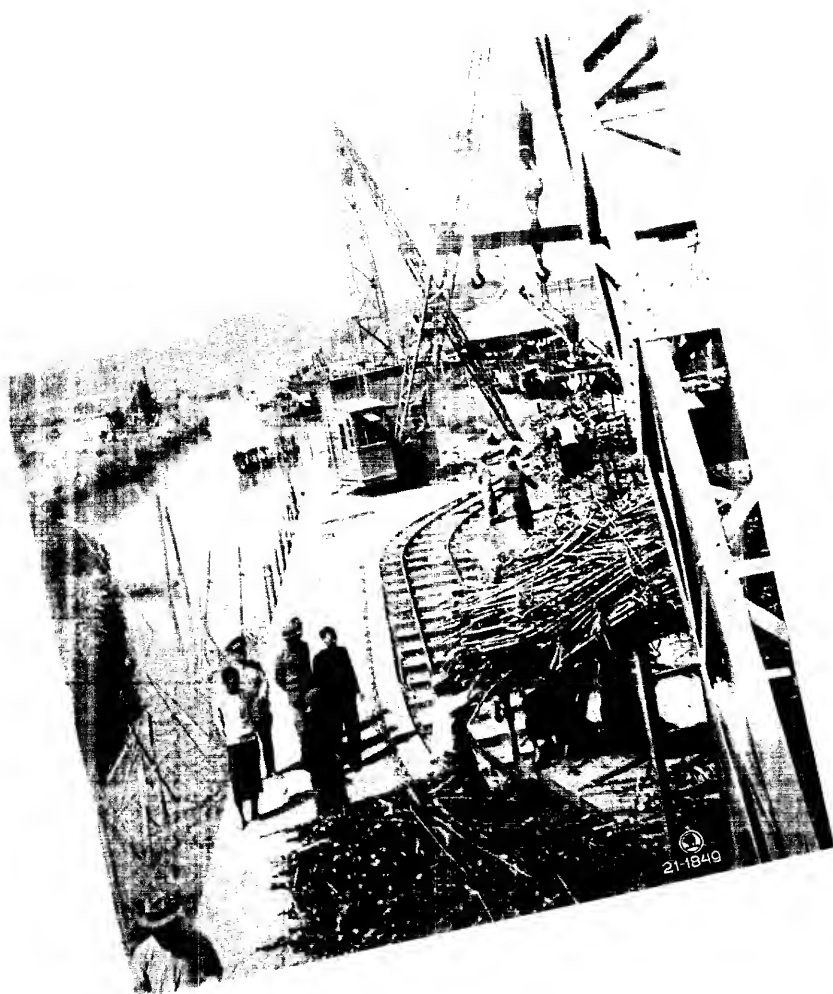


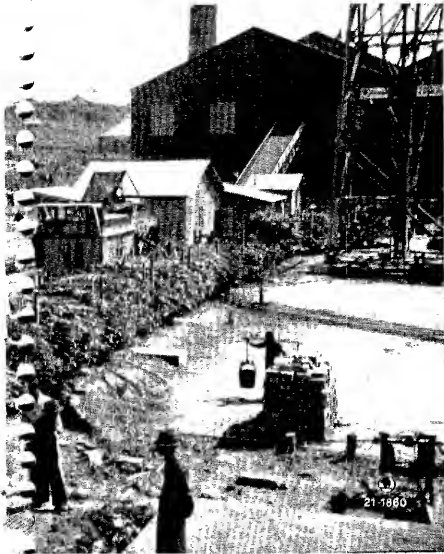
Sugar Factory
Sokolnice (ČSR).
Daily capacity
1000 t of sugar beet.

EUROPEAN COUNTRIES

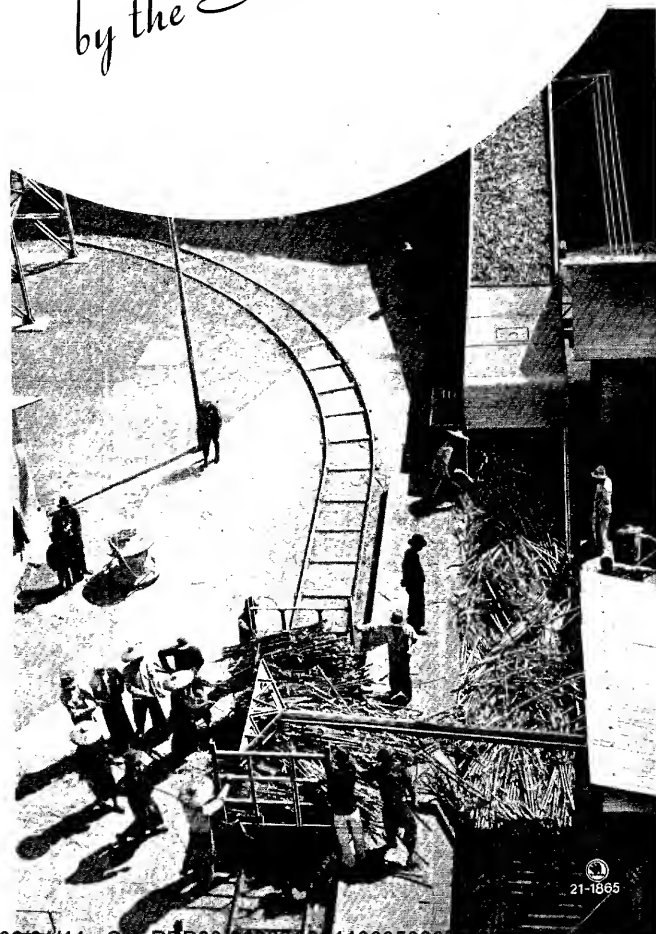


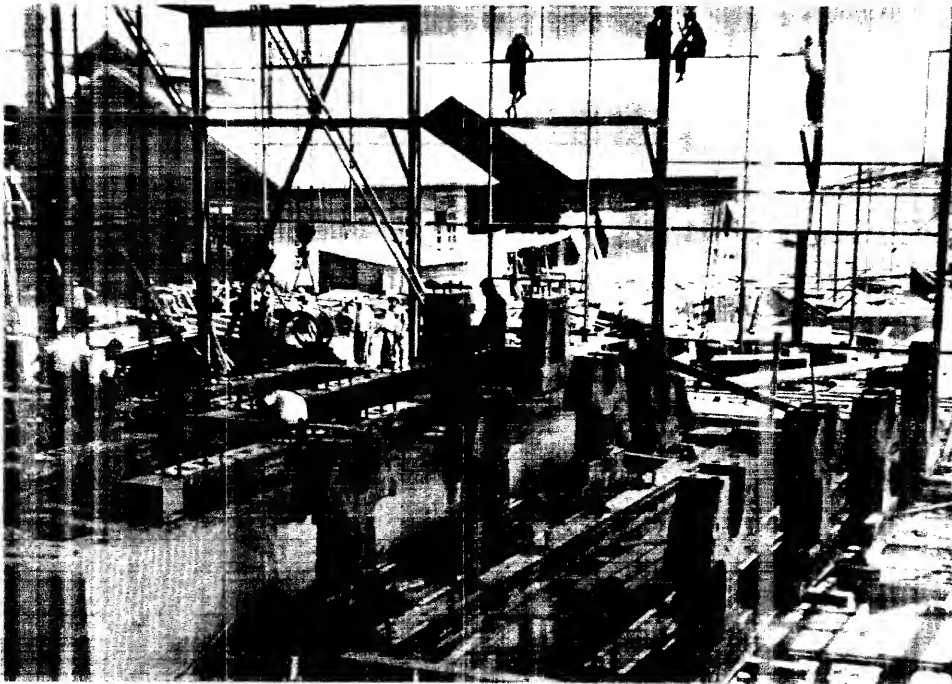
Sugar Factory Dobrovice (CSR). Daily capacity 1000—1200 t of sugar beet.



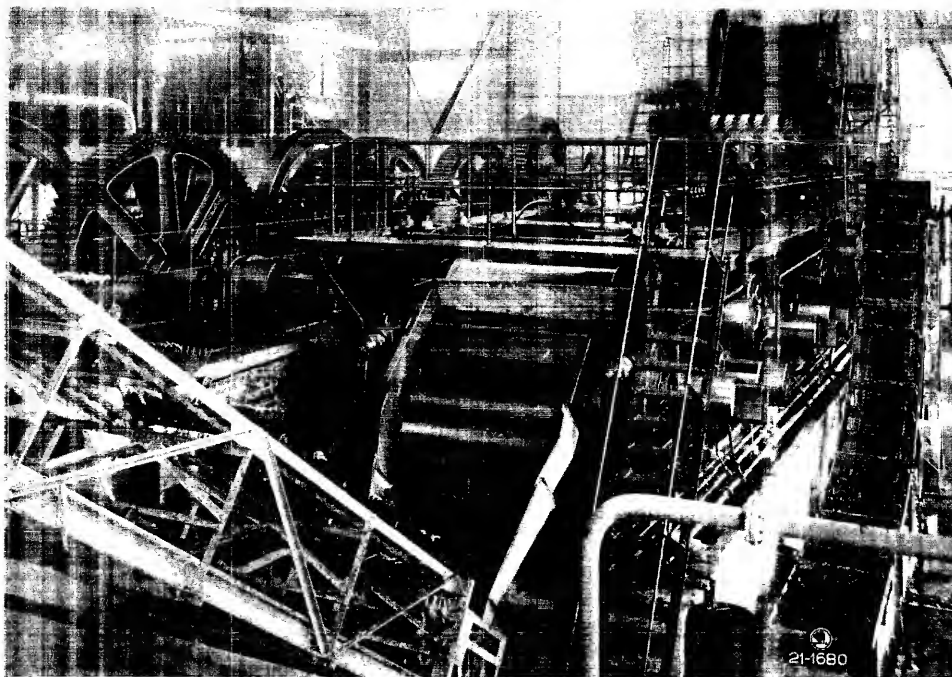


*Illustrations
of Sugar Factory
Equipment supplied
by the Škoda Works*

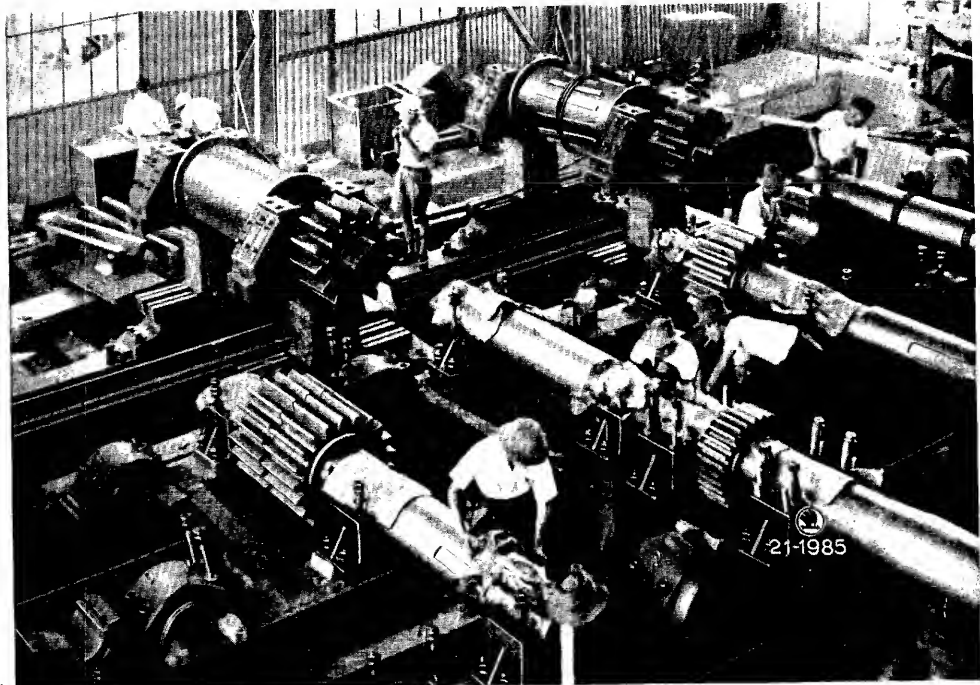




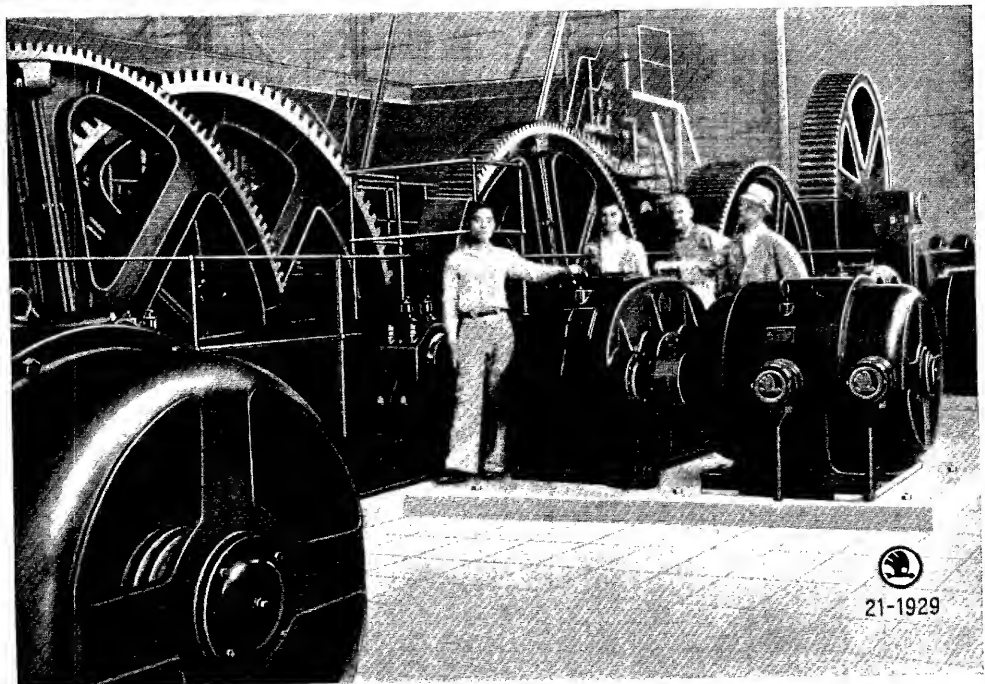
Cane Mill in Course
of Erection.



Cane Mill Station
in Operation.

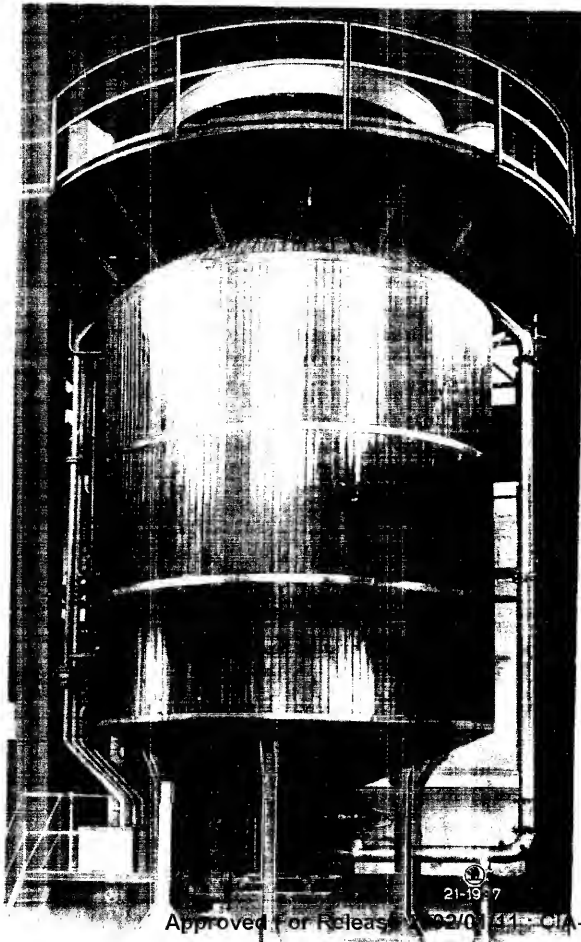


Cane Mill Station
in Course of Erection.

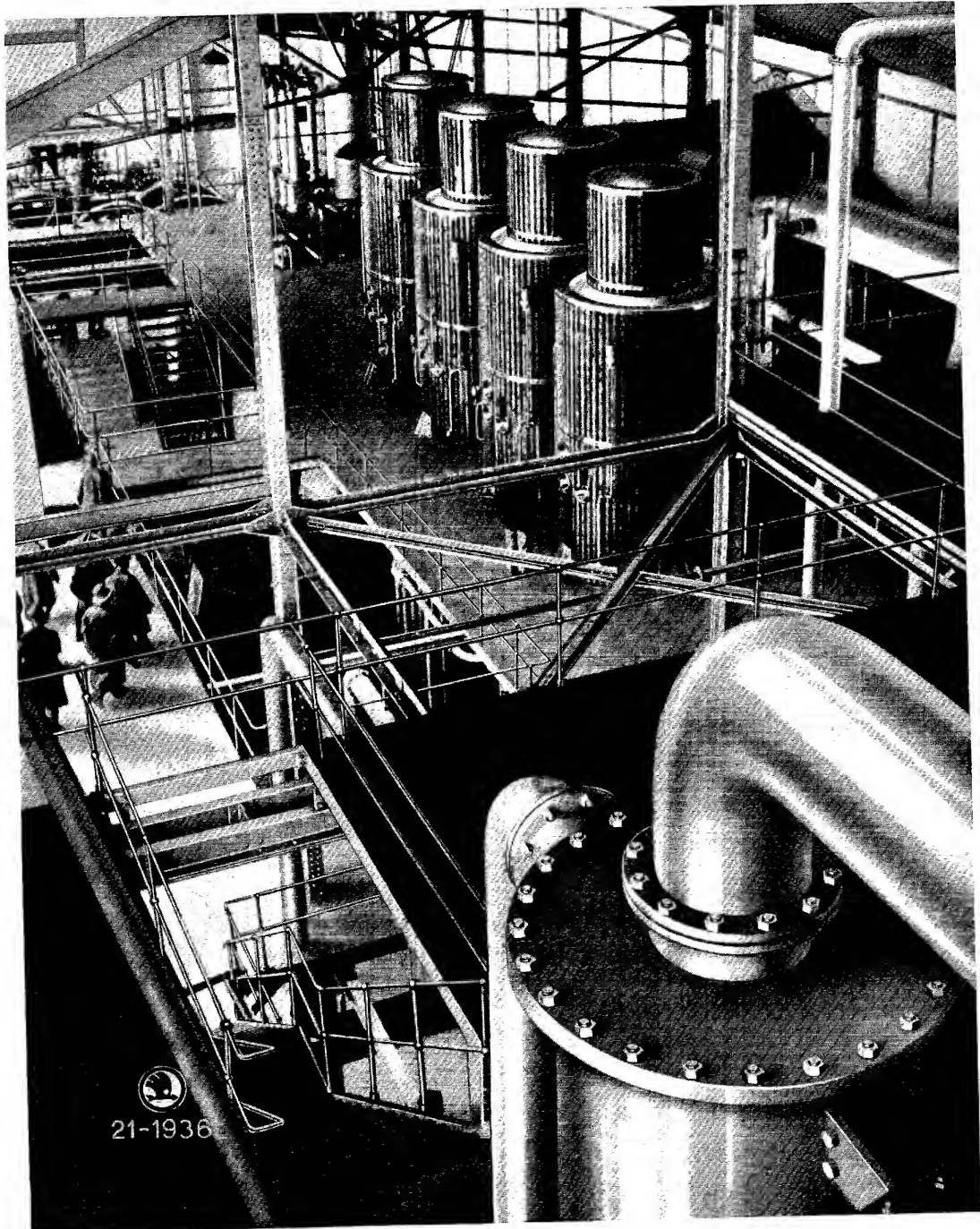


Electric Drive
of a Cane Mill
Station.

Vacuum Station
in a Cane Sugar Mill.

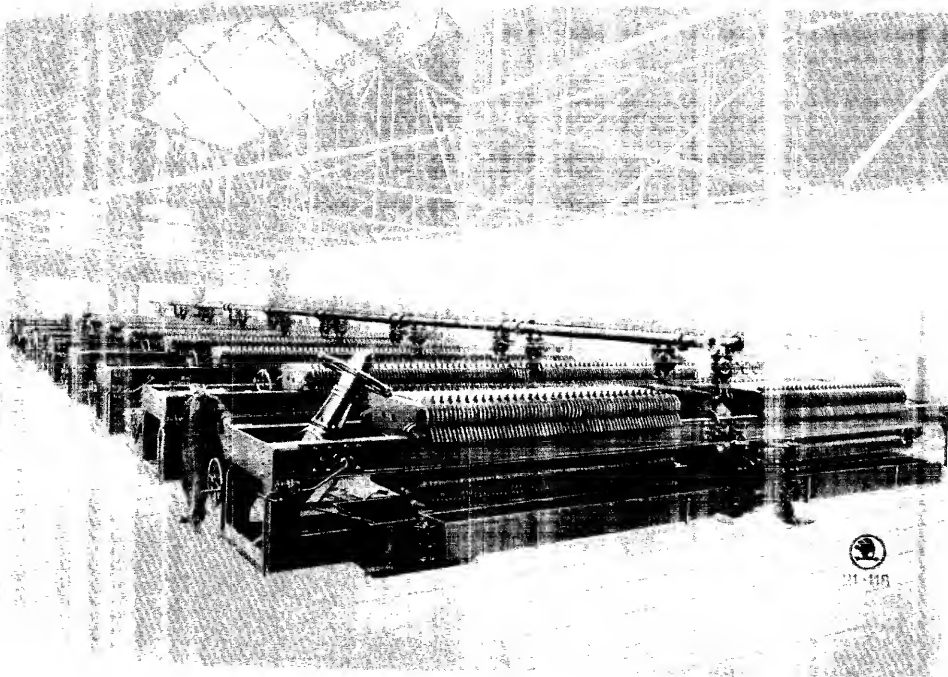
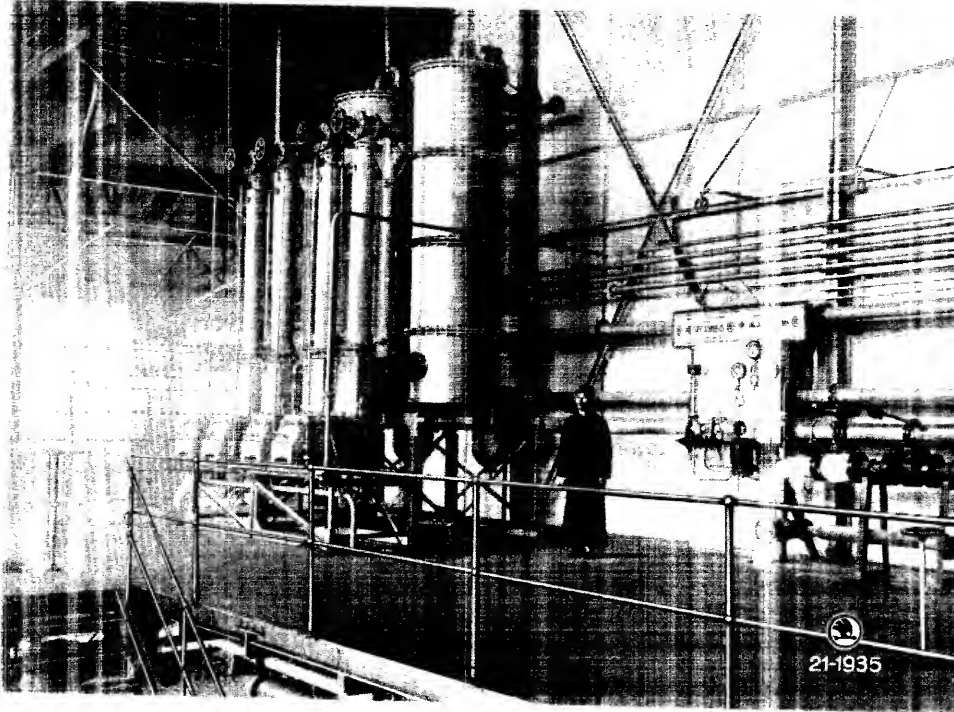


Continuous Decanter
Škoda-Passos, Capacity
21-19-7



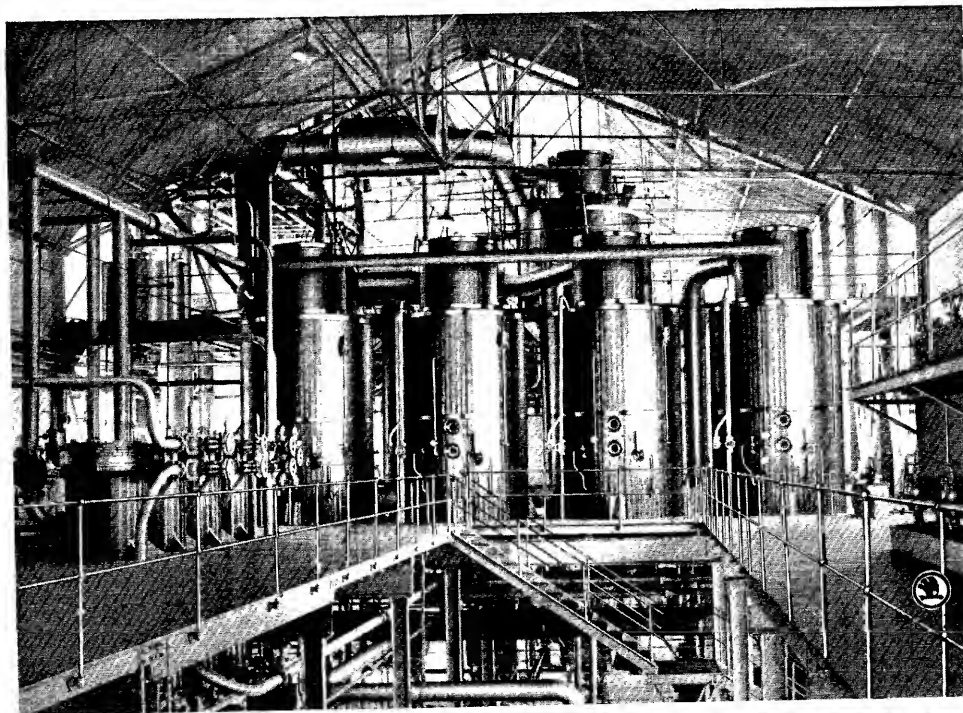
E vaporating Station.

Sulphiting Plant.



Filter Presses Škoda-Čížek.

Evaporating Plant.

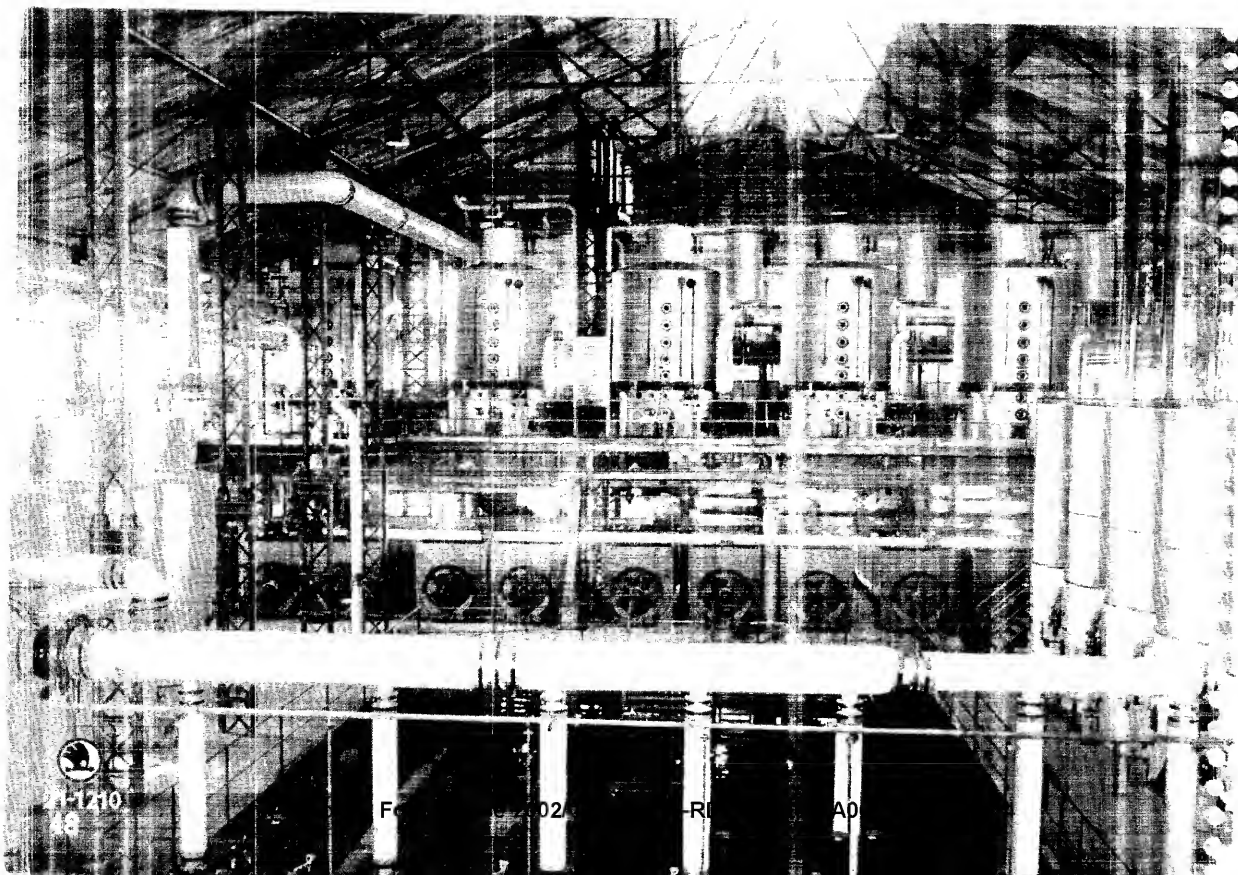


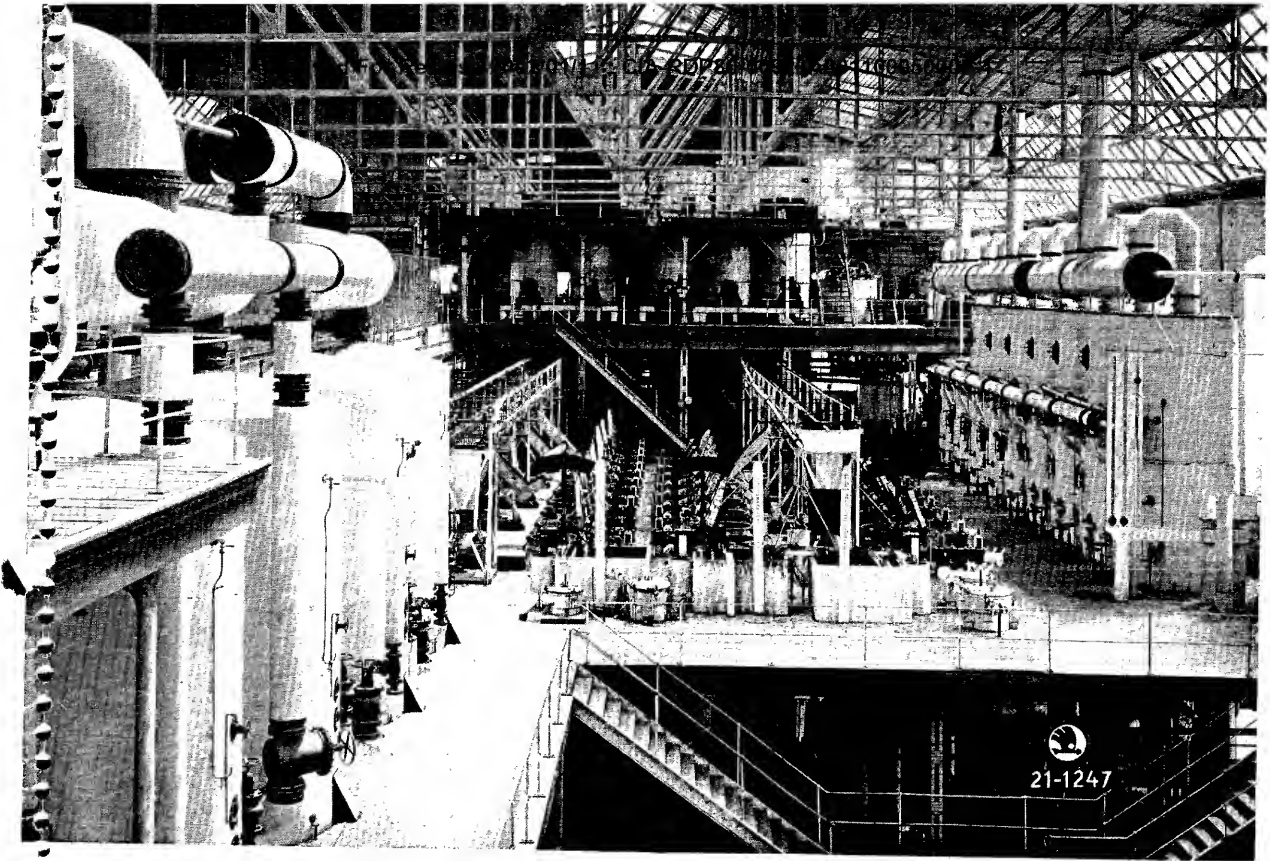
Evaporating Plant.



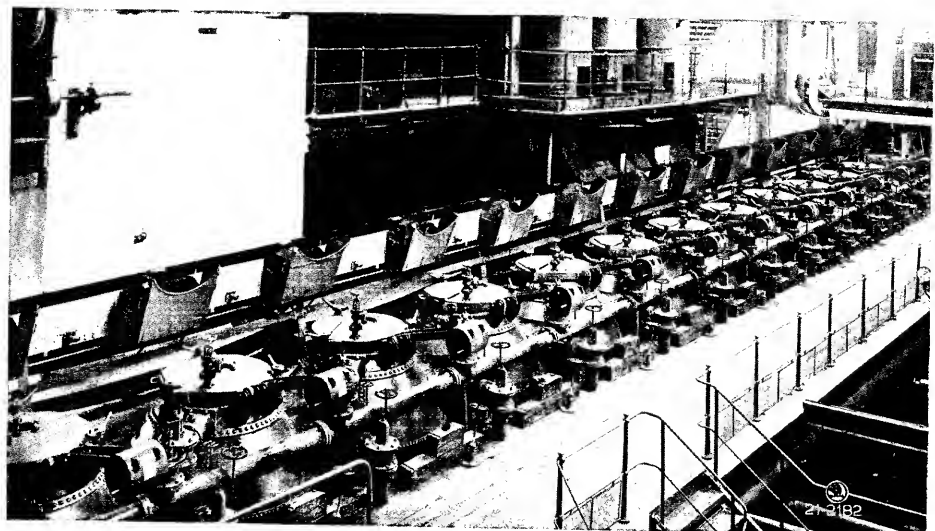
Sugar Beet Flume.

Inside View of a Sugar Factory.



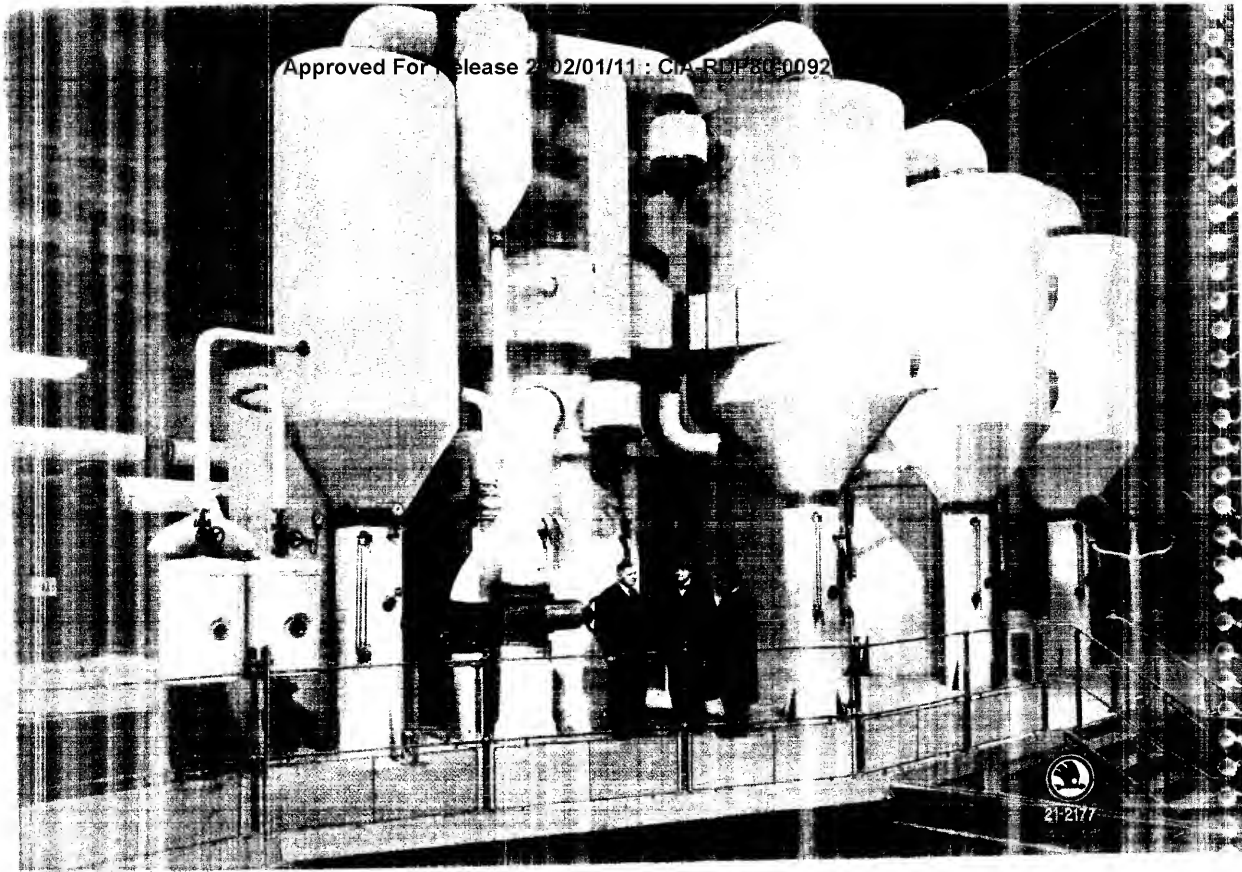


Inside View of a Beet Sugar Factory.

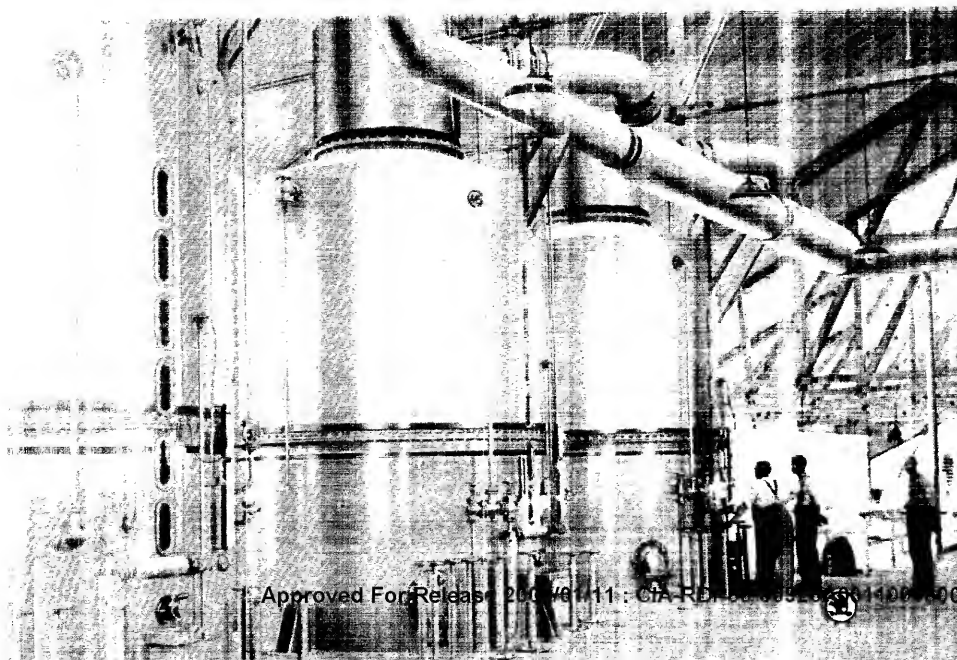


Diffusion Battery with Band Conveyor.

Approved For Release 2002/01/11 : CIA-RDP80-0092



Large Rotary Pressure Evaporators.



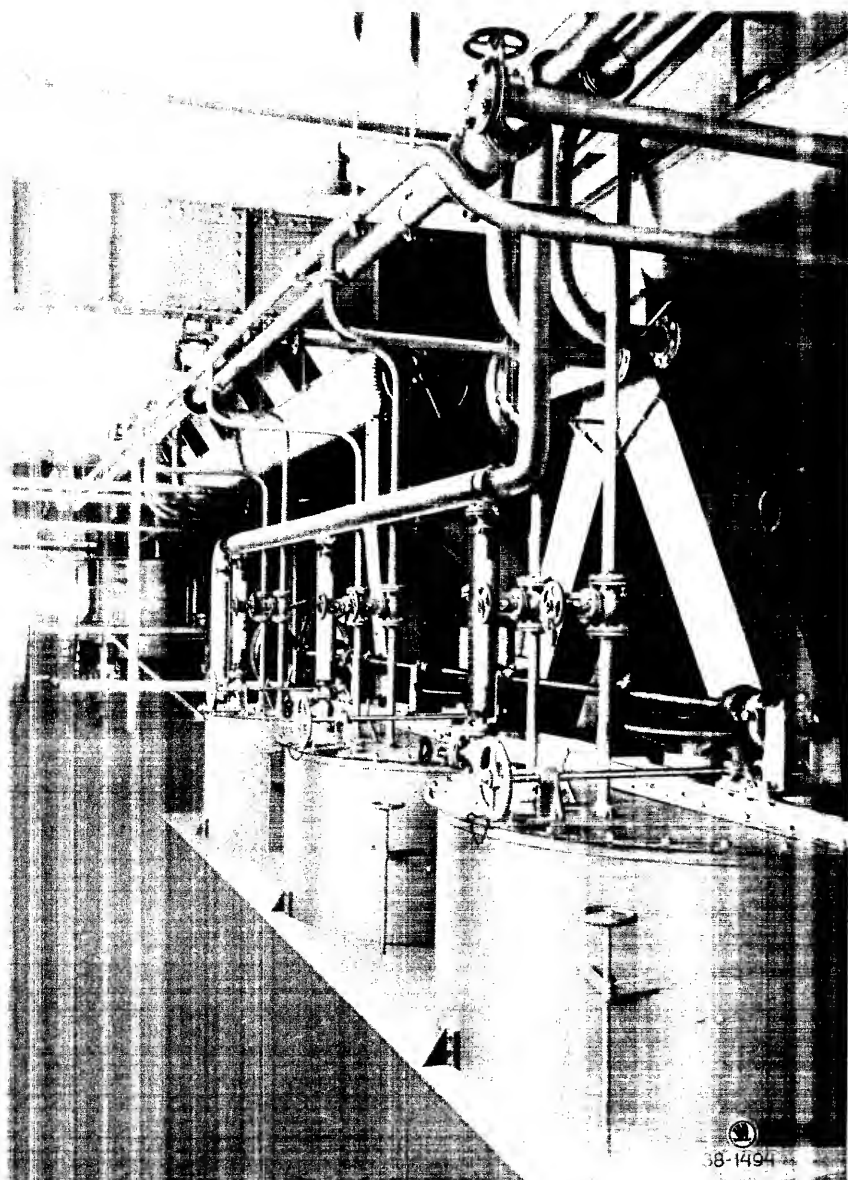
Vacuum Pans of a
Beet Sugar Factory.

Approved For Release 2002/01/11 : CIA-RDP80-0092-50

A large industrial machine, likely a steam engine or boiler, with a tall cylindrical stack and a complex frame. A person is visible on the right side, providing a sense of scale. The machine has various pipes, valves, and structural supports. The image is in black and white, with a grainy texture.

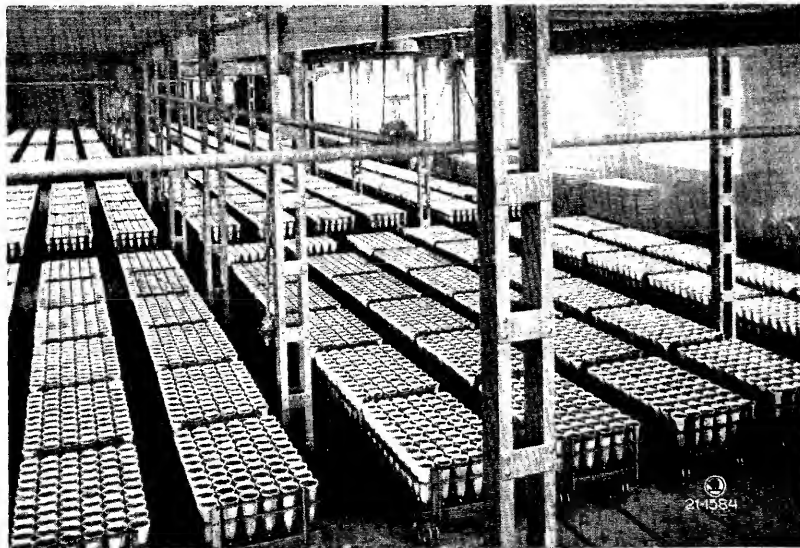
Approved For Release 2002/01/11 : CIA-RDP80-00922R0001-000000000000-6

21-1211
51

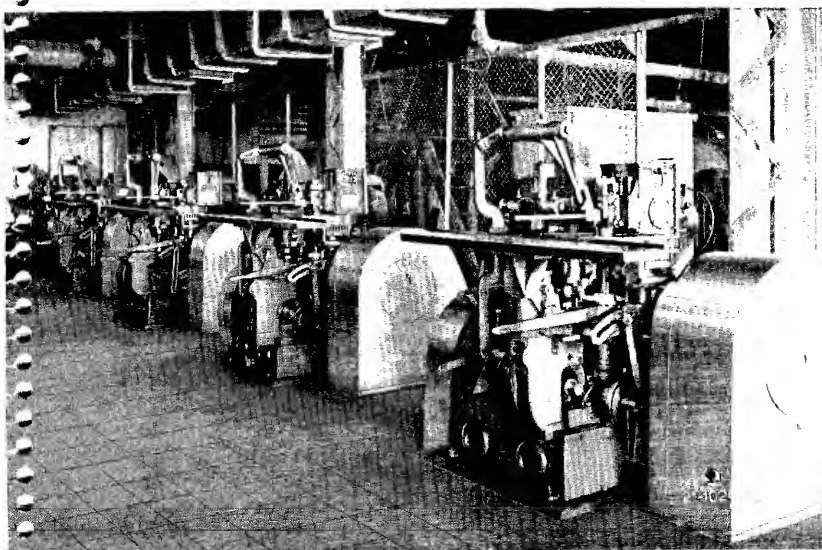


Dissolving Pans.

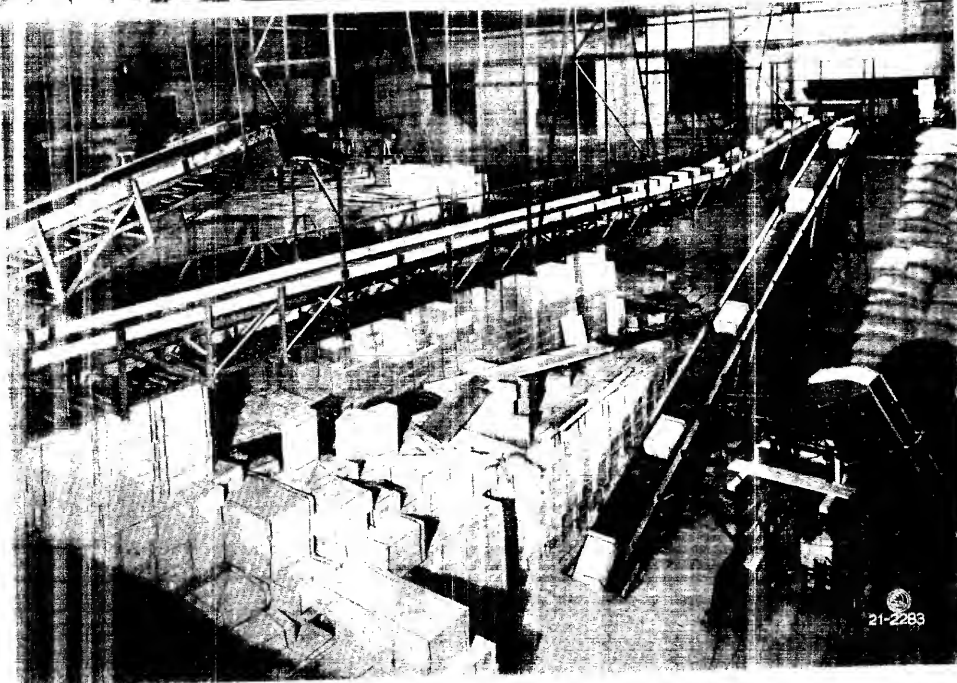
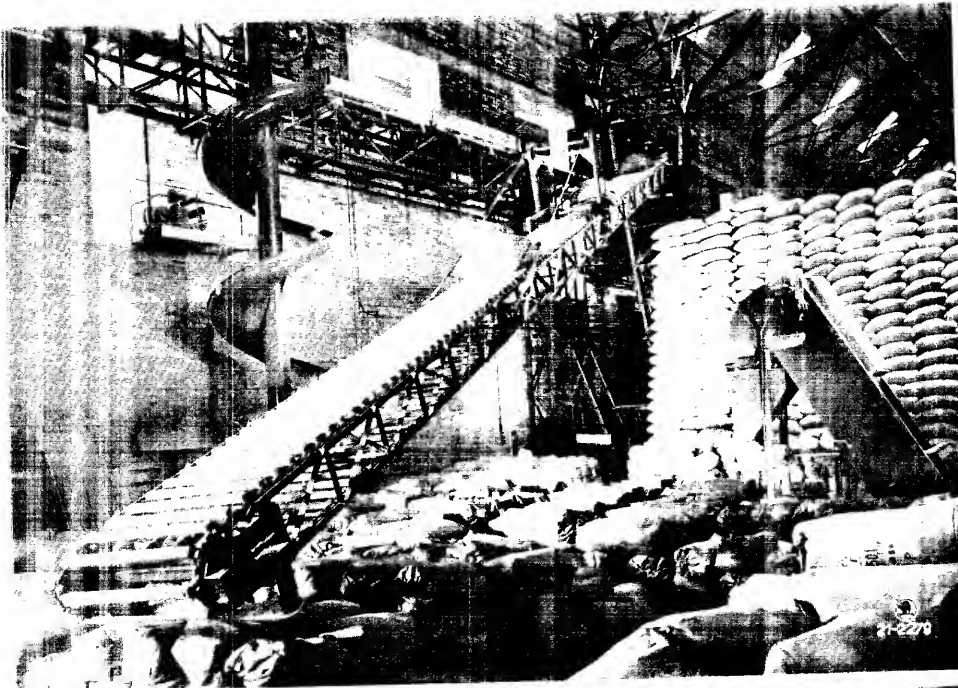
Drying and Filling Hall of a Plant
for Sugar Loaves.



Škoda-Pzillas Sugar Bar Presses.

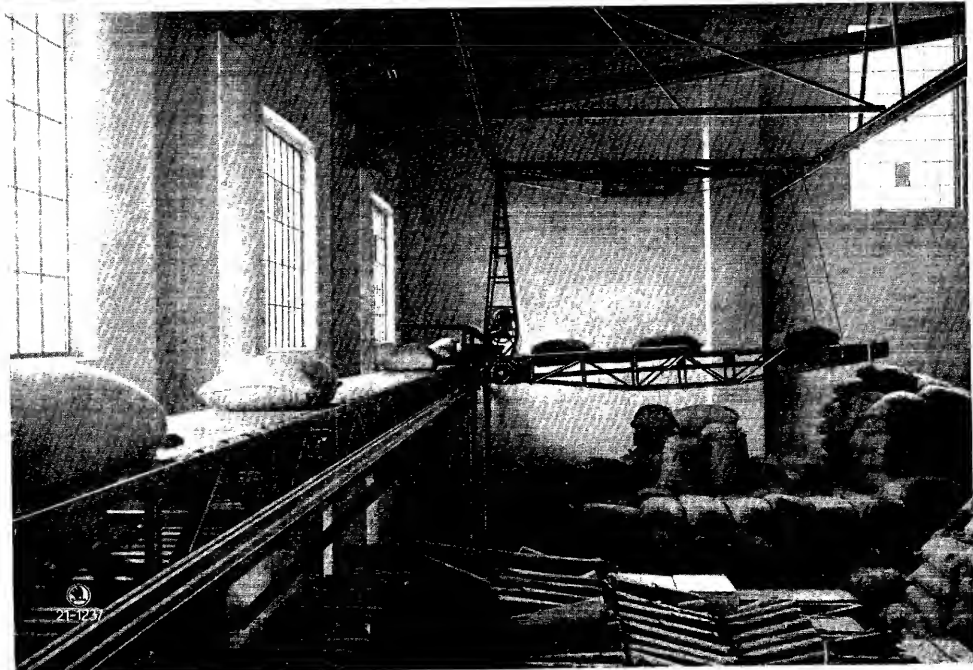
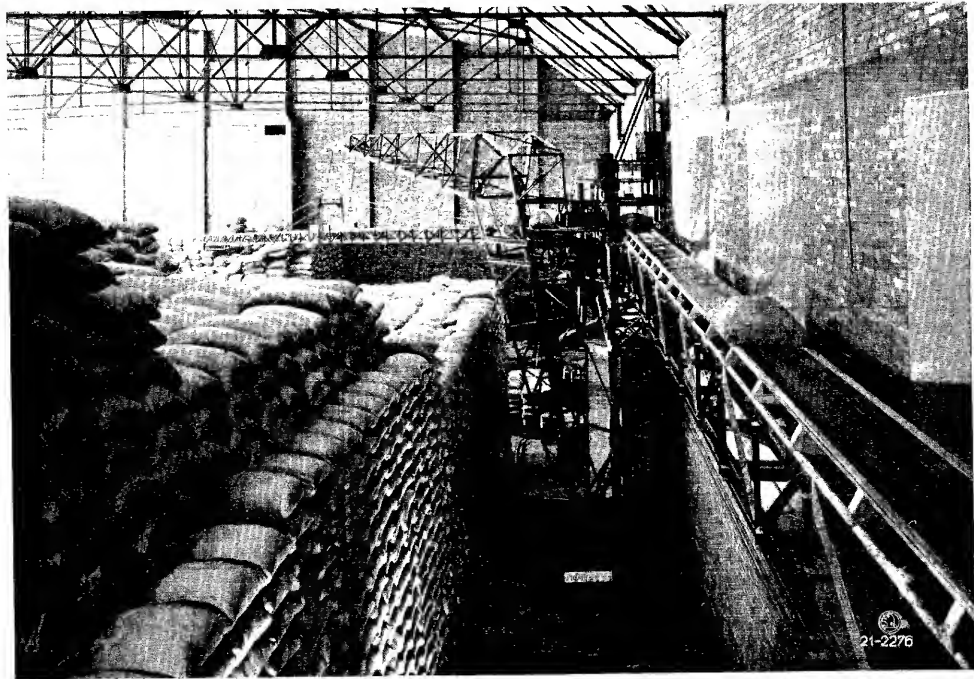


Tongshan Island, China, Yangtze River and
Sugar Refining Plant, Wenzhou, China

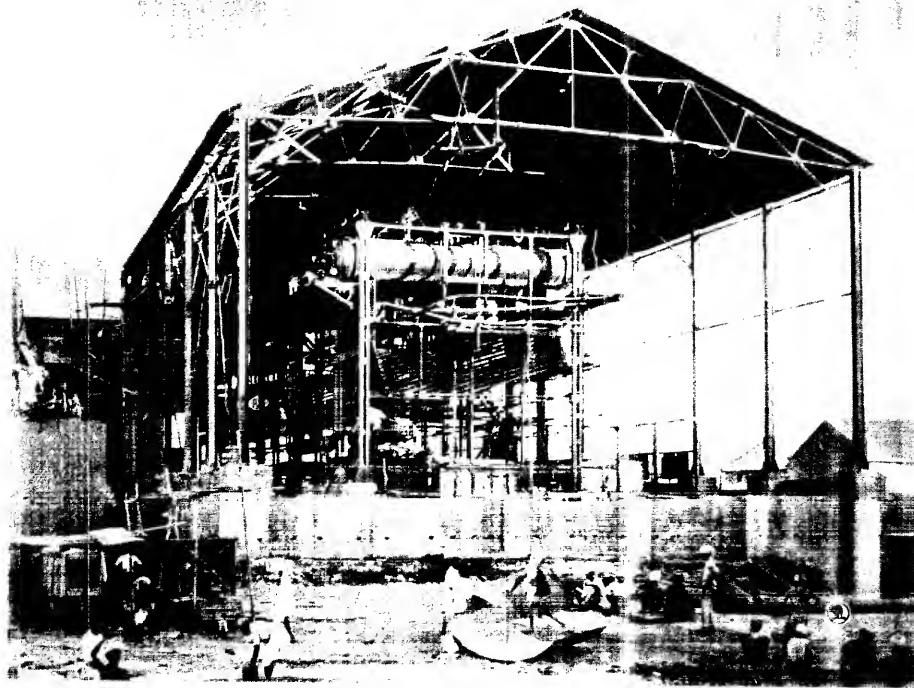


China, near the Yangtze River and Wenzhou, China

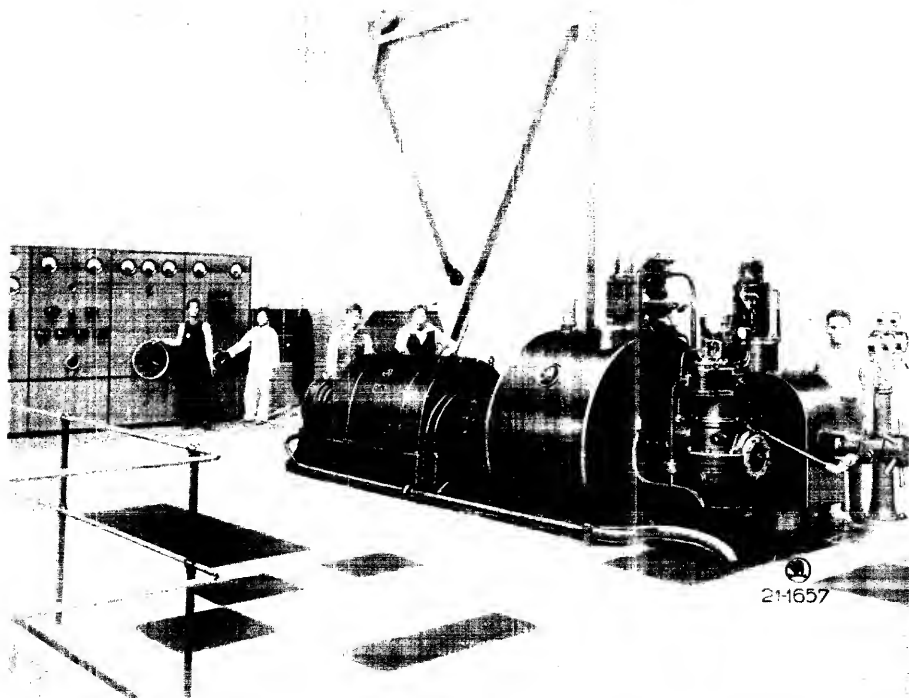
Steel Conveying Belt and Tilttable
Link-Conveyor for Bags.



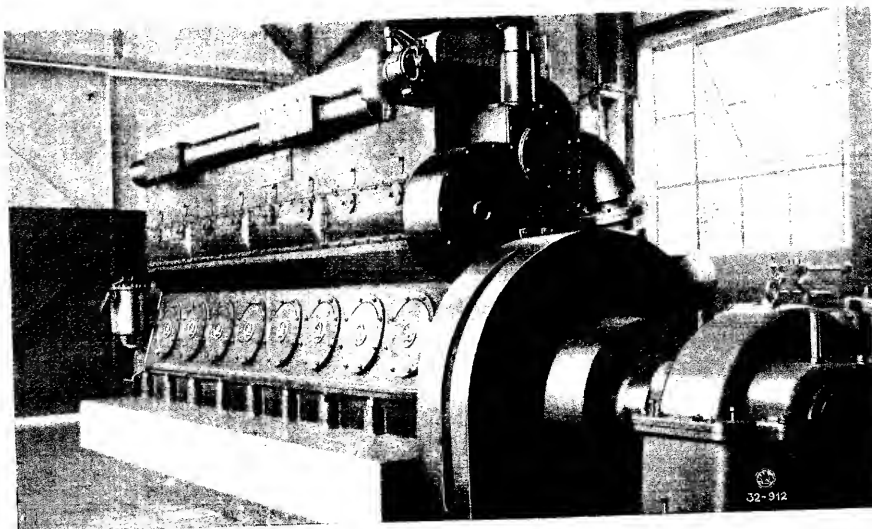
Conveying Belt with Tilttable Conveyor for Bags, Boxes and Loaves.



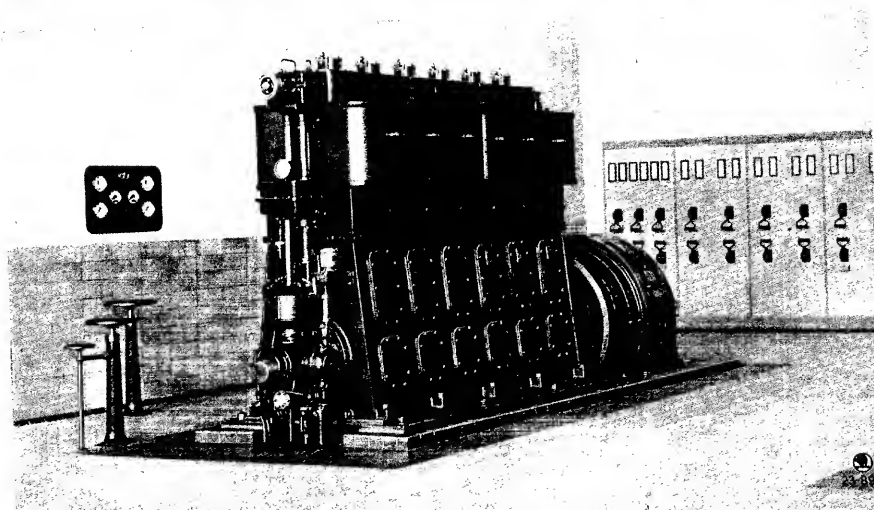
Boiler house with Sectional-tube Boiler for a Sugar Mill.



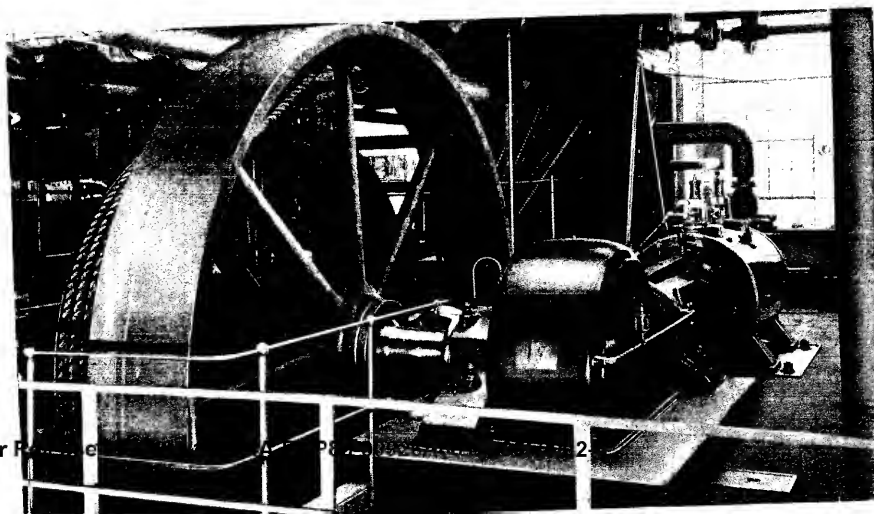
21-1657



Diesel Engine, Type 8 S 270,
375 HP at 500 r. p. m.

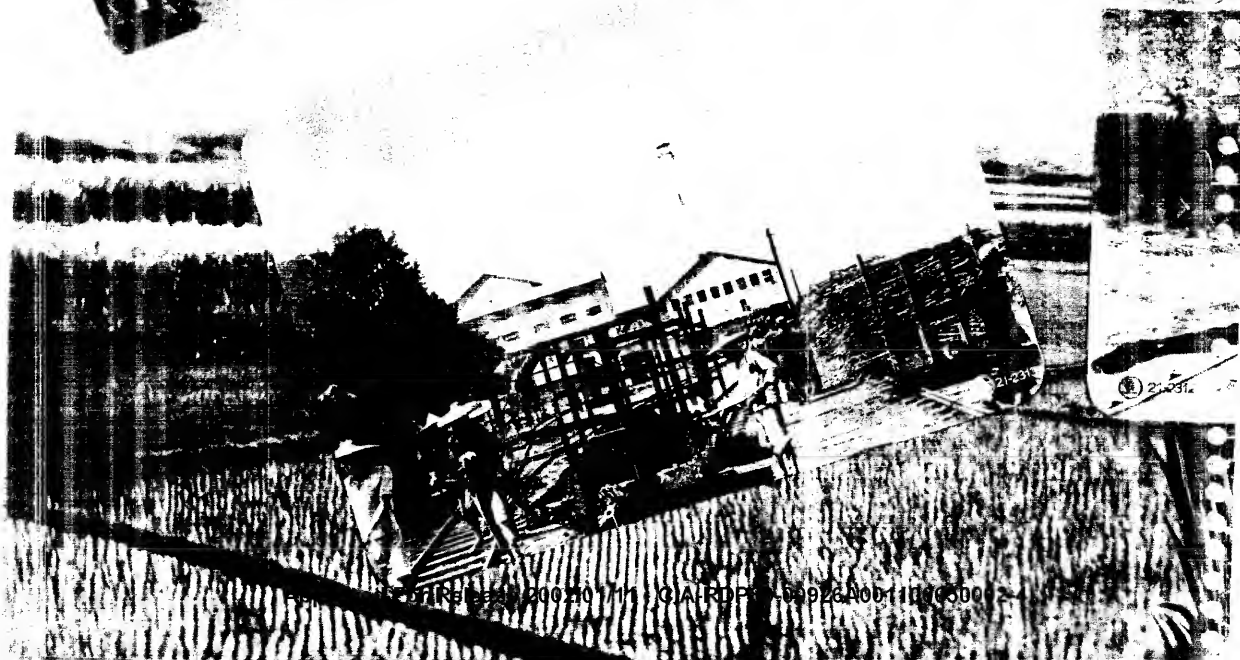
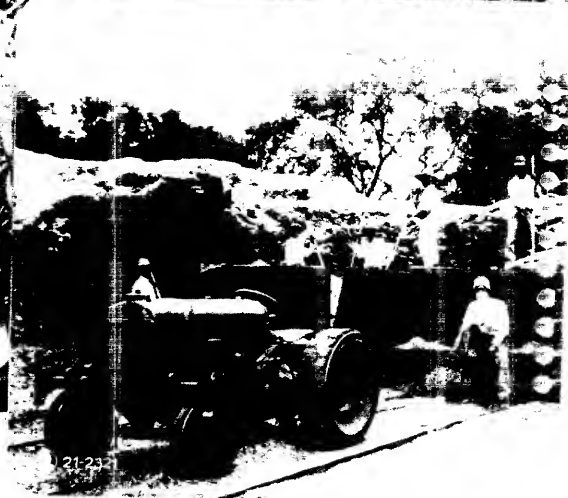
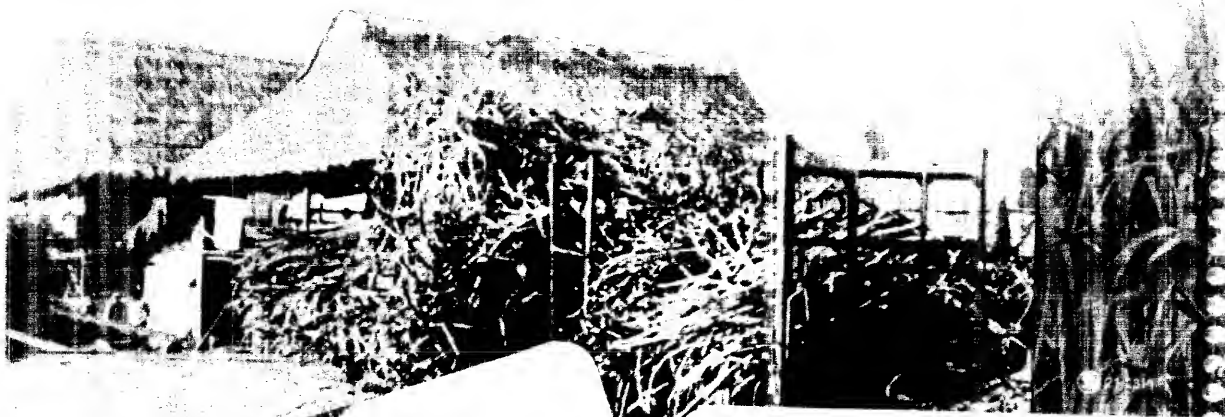


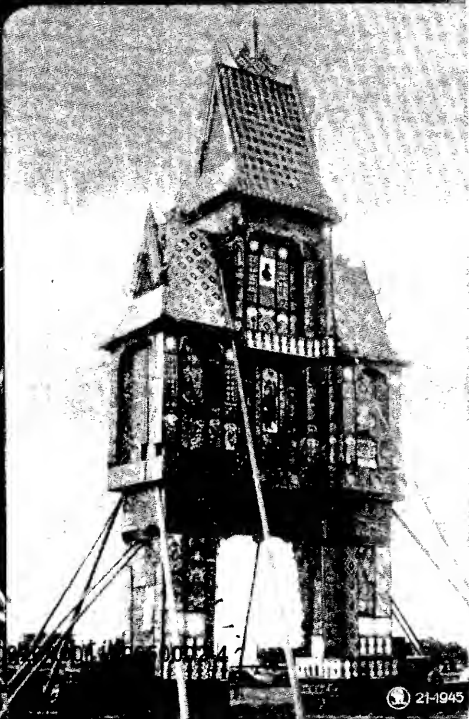
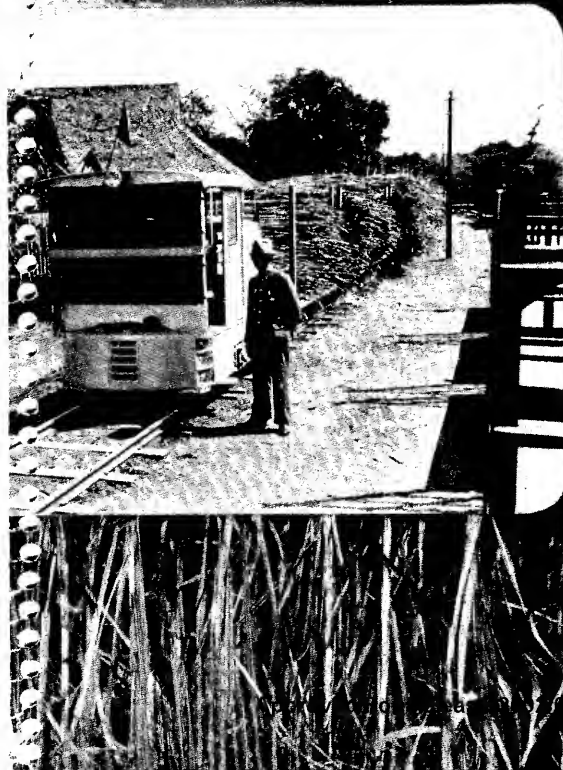
High-speed Steam Engine
with Generator.



Horizontal Steam Engine.

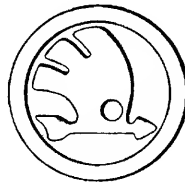
Approved For Release 2002/01/11 : CIA-RDP80-00926A001100050002-4





Approved For Release 2002/01/11 : CIA-RDP80-00926A001100050002-4

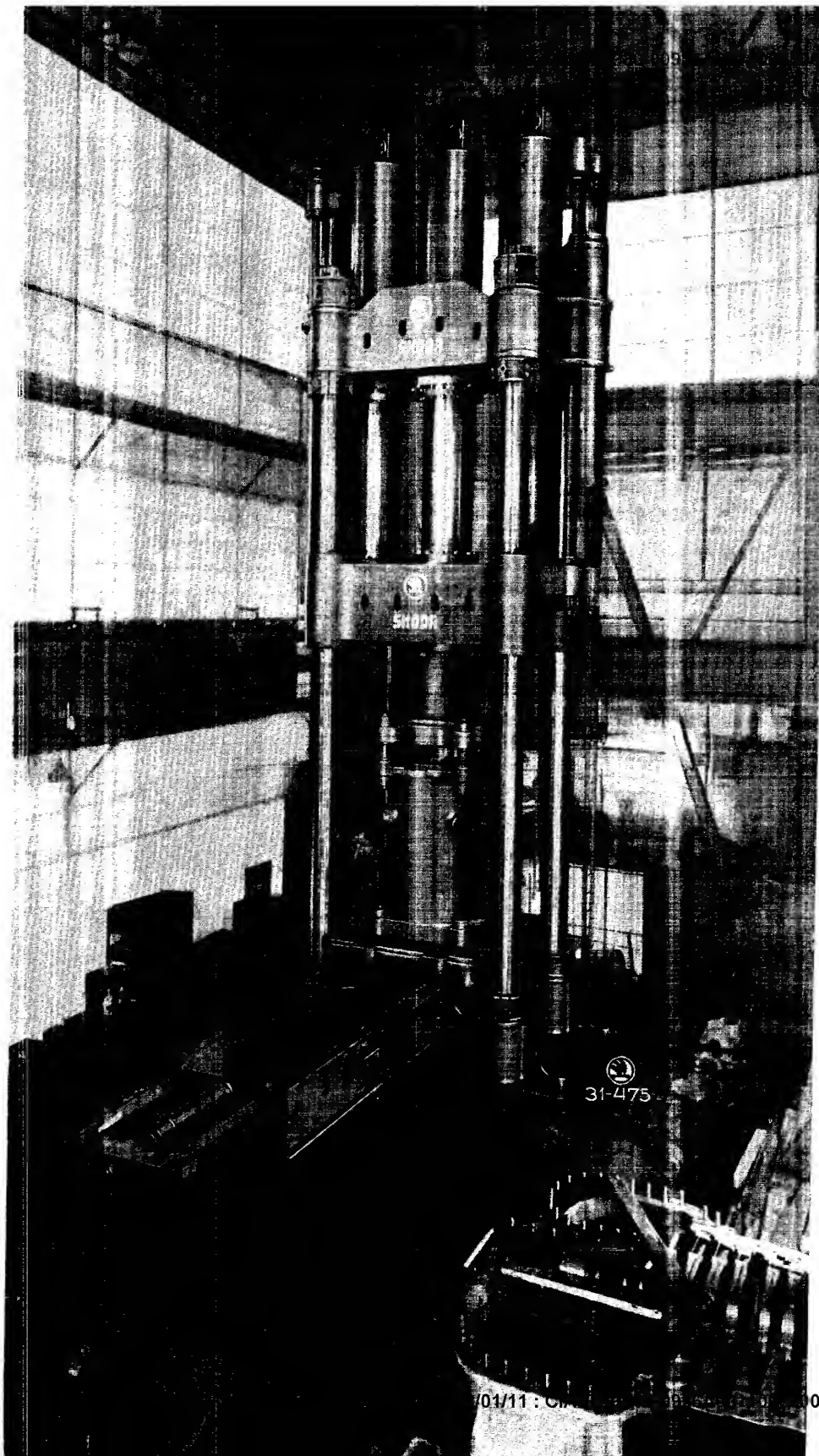
HYDRAULIC PRESSES



Approved For Release 2002/01/11 : CIA-RDP80-00926A001100050002-4

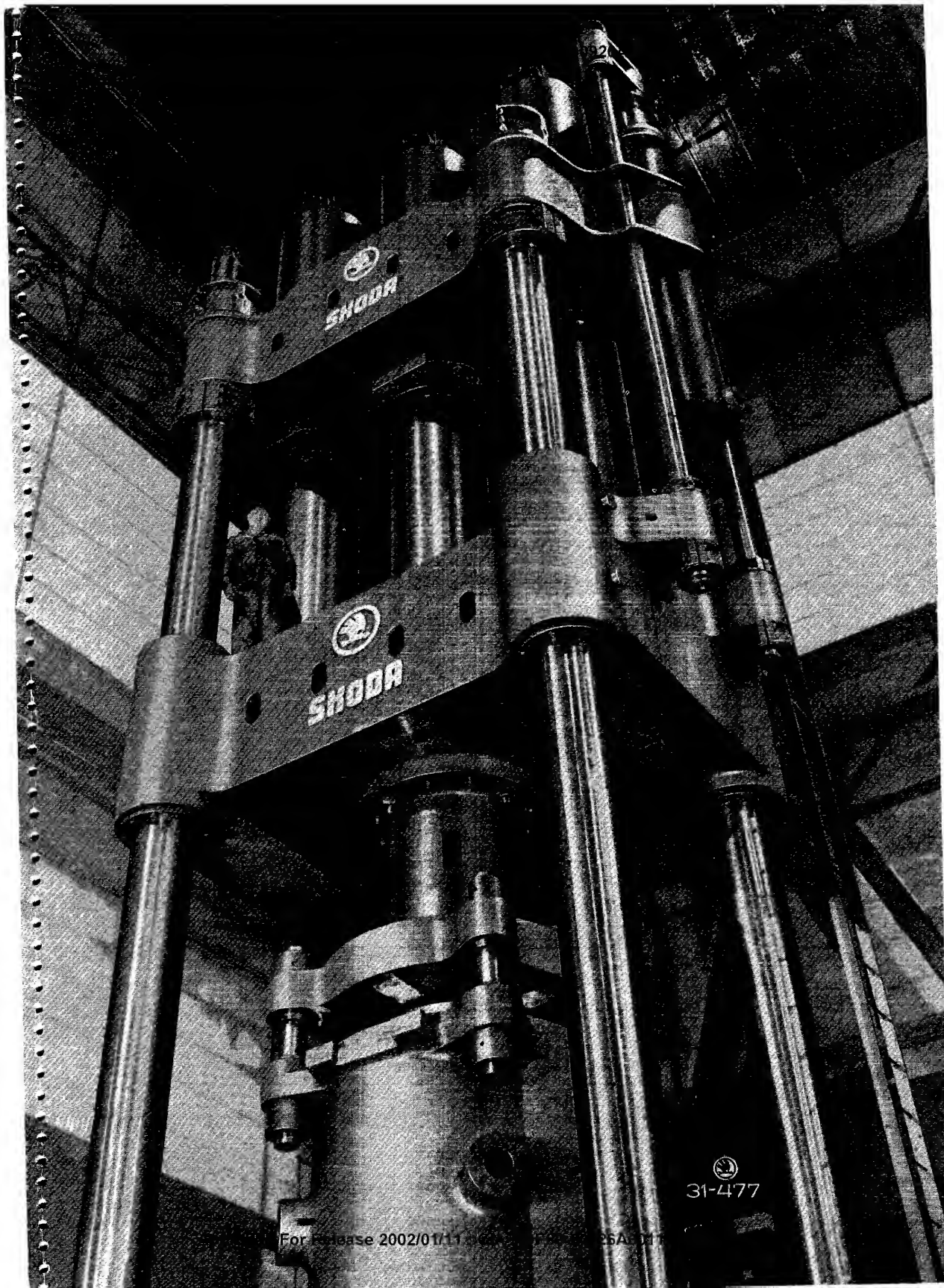
U S E S O F H Y D R A U L I C P R E S S E S

FORGES	for rough and finishing forging as well as for drop forging and breaking of material.
RAILWAY WORKSHOPS	producing wheels, disc, buffers, hooks, wheel-tyres, bearing springs, etc. for pressing on and off wagon wheels, for making and testing of buffers and bearing springs.
LOCOMOTIVE AND SHEET IRON WORKSHOPS	for bending, flanging, straightening, cutting and riveting of sheet iron articles.
MECHANICAL WORKSHOPS	for adjusting various articles and for mounting (pressing on) or assembling of machine components, etc.
AMMUNITION FACTORIES	for punching and drawing, moulding of explosives, testing etc.
RUBBER FACTORIES AND THE LIKE	for vulcanizing rubber belts, rubber shoes, automobile tyres, etc.
CABLE FACTORIES	for applying lead sheaths to cables.
BAKELITE FACTORIES	manufacturing electric installation materials, cooking utensils, decorative articles, etc.
VARIOUS WORKSHOPS	for pressing tobacco, cotton, textile material and for packing of sal ammoniac, soot and metal chips, for the production of veneer, etc: for pressing oil from seeds for pressing naphtalene, meat extracts, chocolate, dough products, etc., for the manufacture of electrodes, lead mines, carborundum grinding wheel, etc.

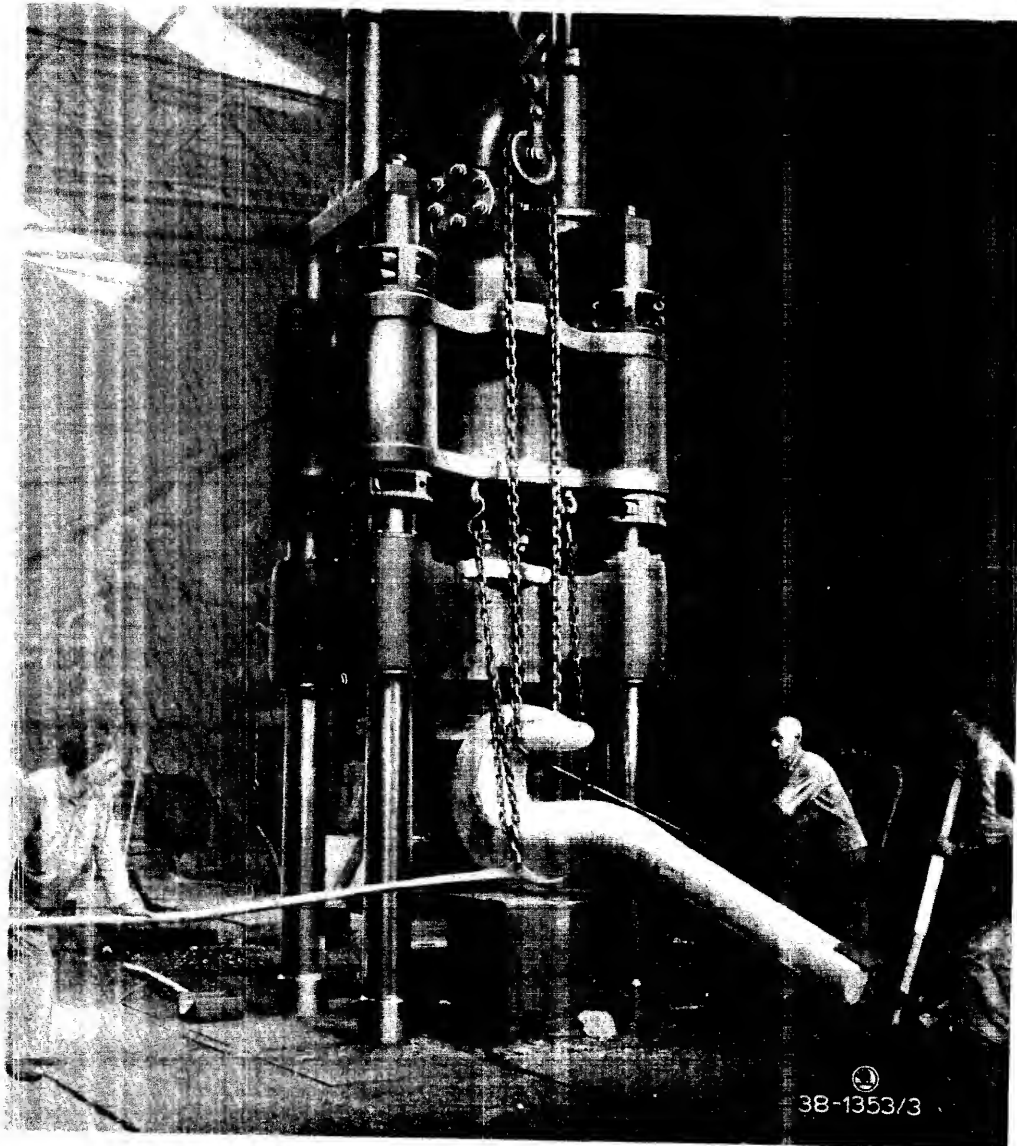


2-4

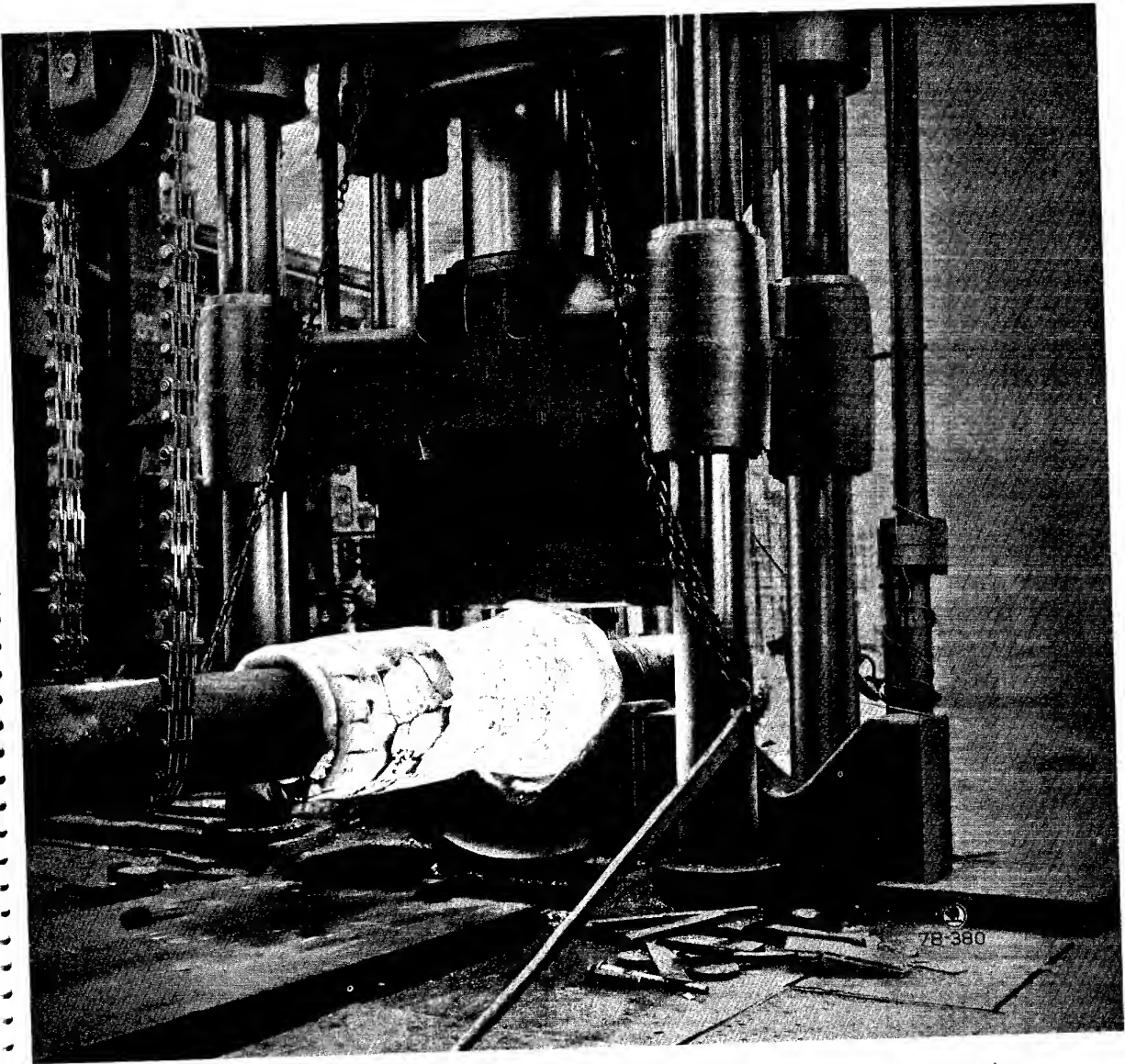
3000 t hydraulic
dressing press,
2840 lbs sq. in
(200 atm).



31-477



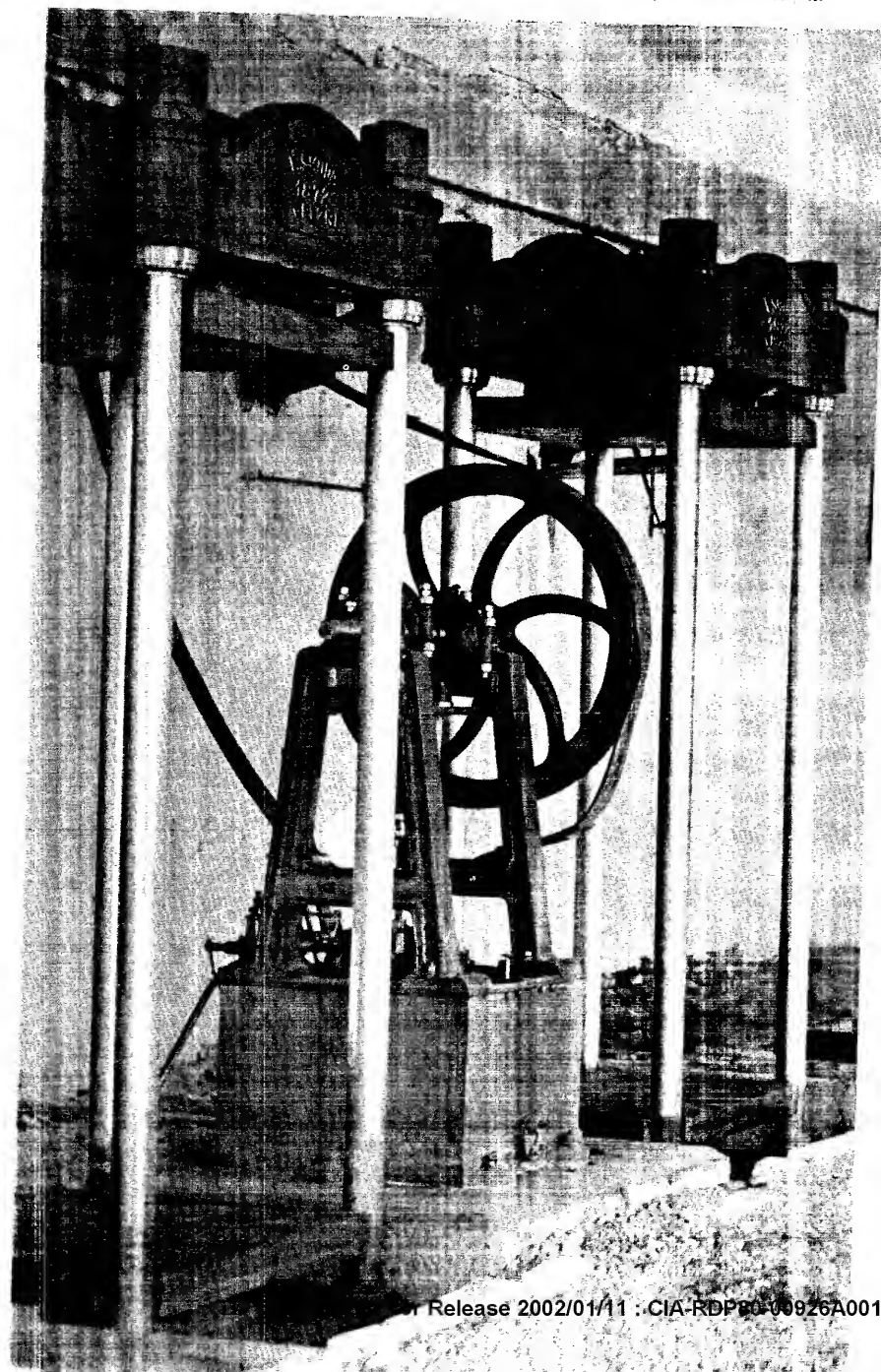
Forging a crane hook.

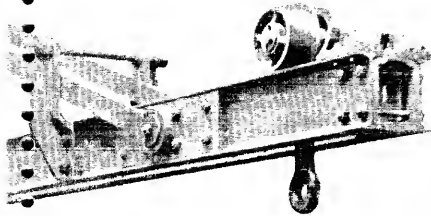


Forging a high-pressure vessel.

YEAR OF MANUFACTURE 1872

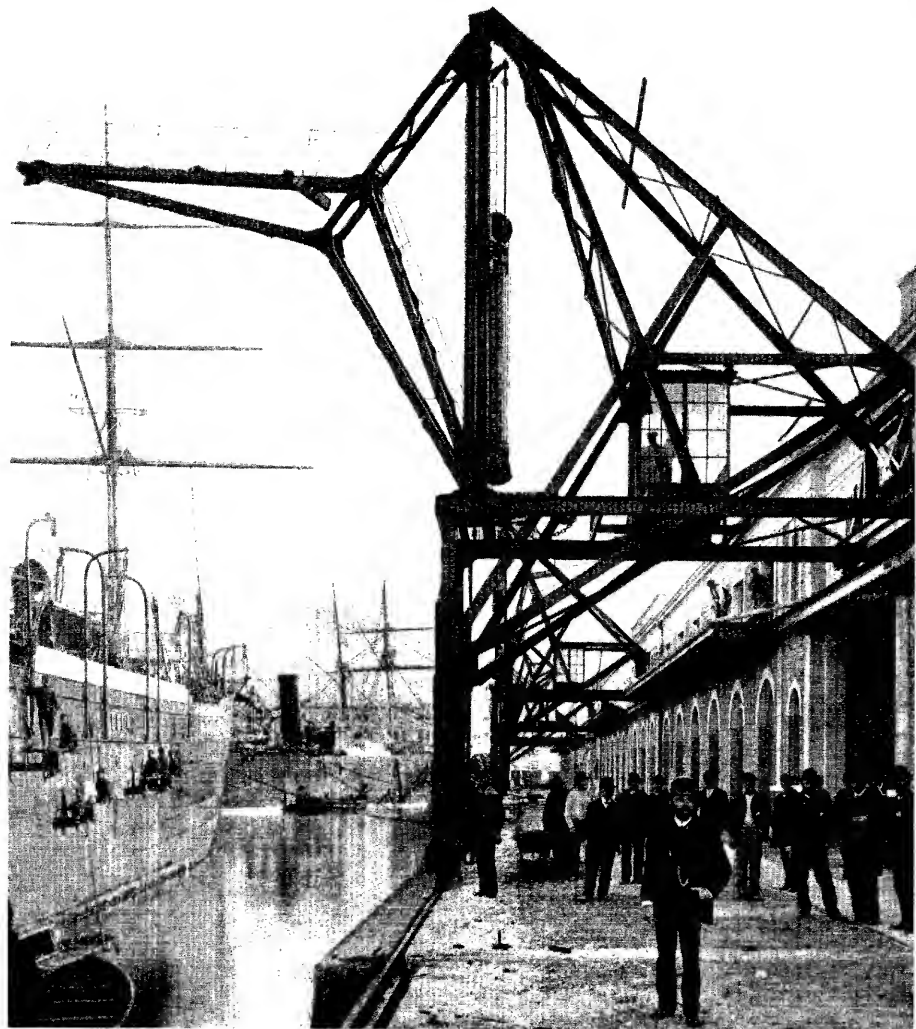
The Škoda Works figure among the oldest engineering factories of Europe. As early as in the second half of the last century they took up the manufacture of hydraulic machines. The first hydraulic presses built by the Škoda Works in the year 1872 were fourcolumn machines with lower working press cylinder. The return movement of the plunger was effected by its own weight.





THE FIRST ŠKODA HYDRAULIC SLEWING CRANE built about 1880.

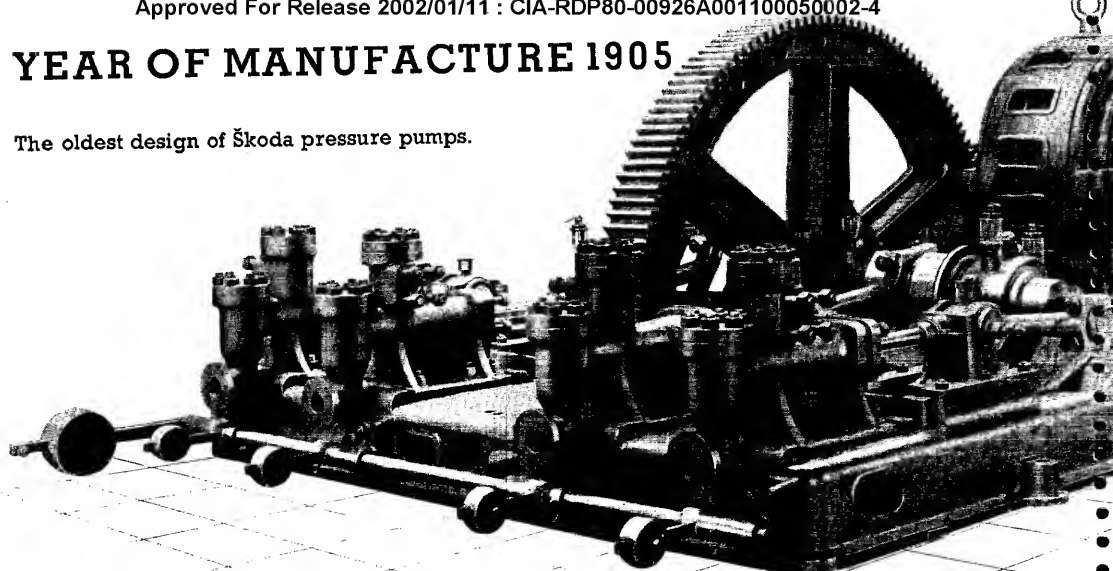
The crane was equipped with a slewing arm and a plunger inserted in the crane cylinder. The upward movement was performed by means of low-pressure water. The load suspended in a crab of the jib arm was moved by hand.



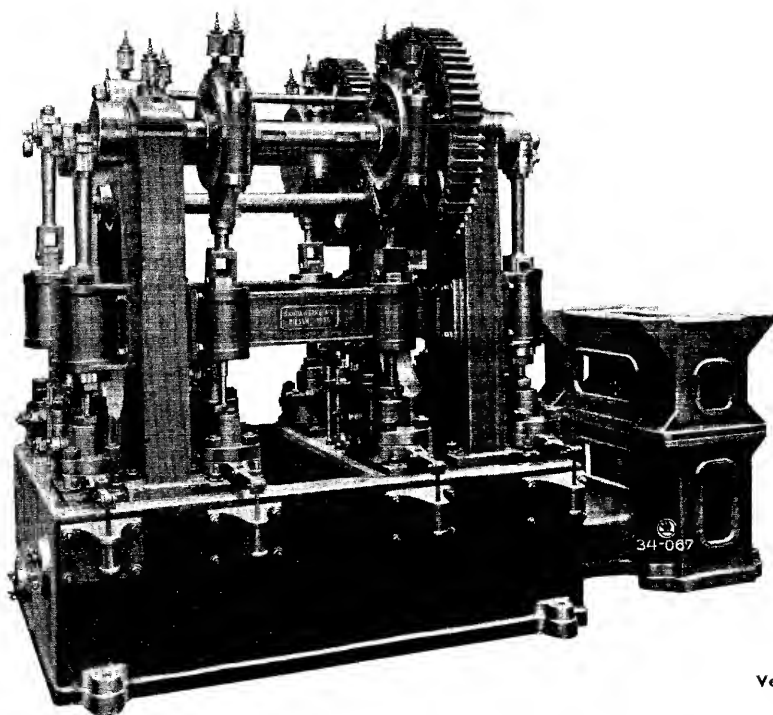
The oldest Škoda hydraulic crane in a sea harbour.

YEAR OF MANUFACTURE 1905

The oldest design of Škoda pressure pumps.



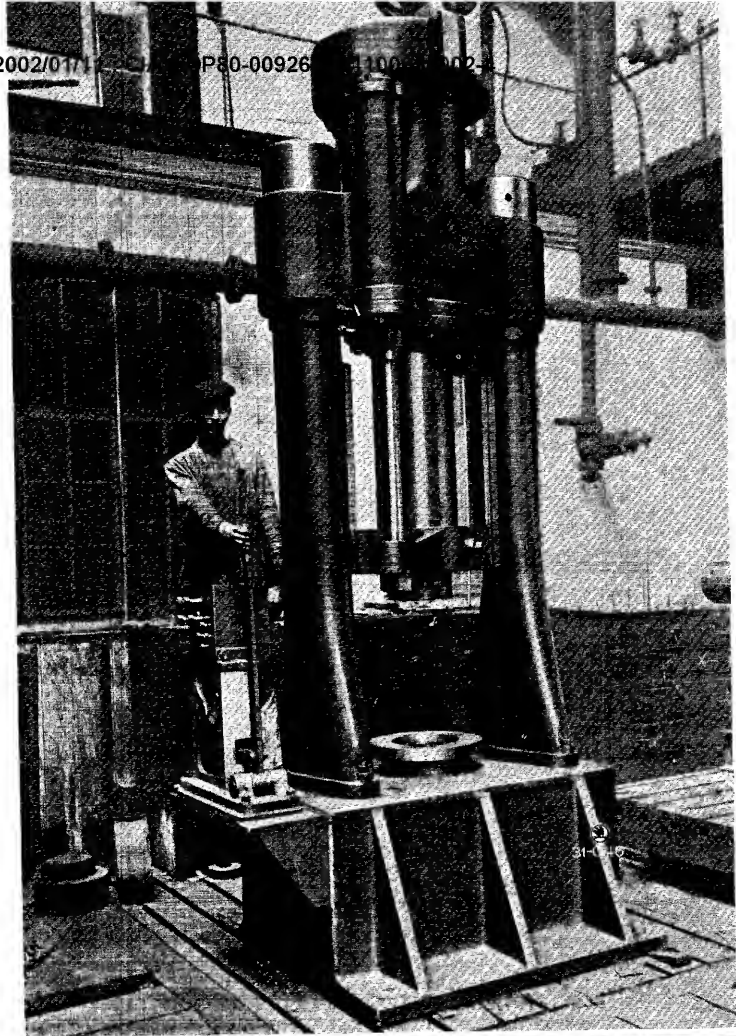
Horizontal pumps with 4 plungers.



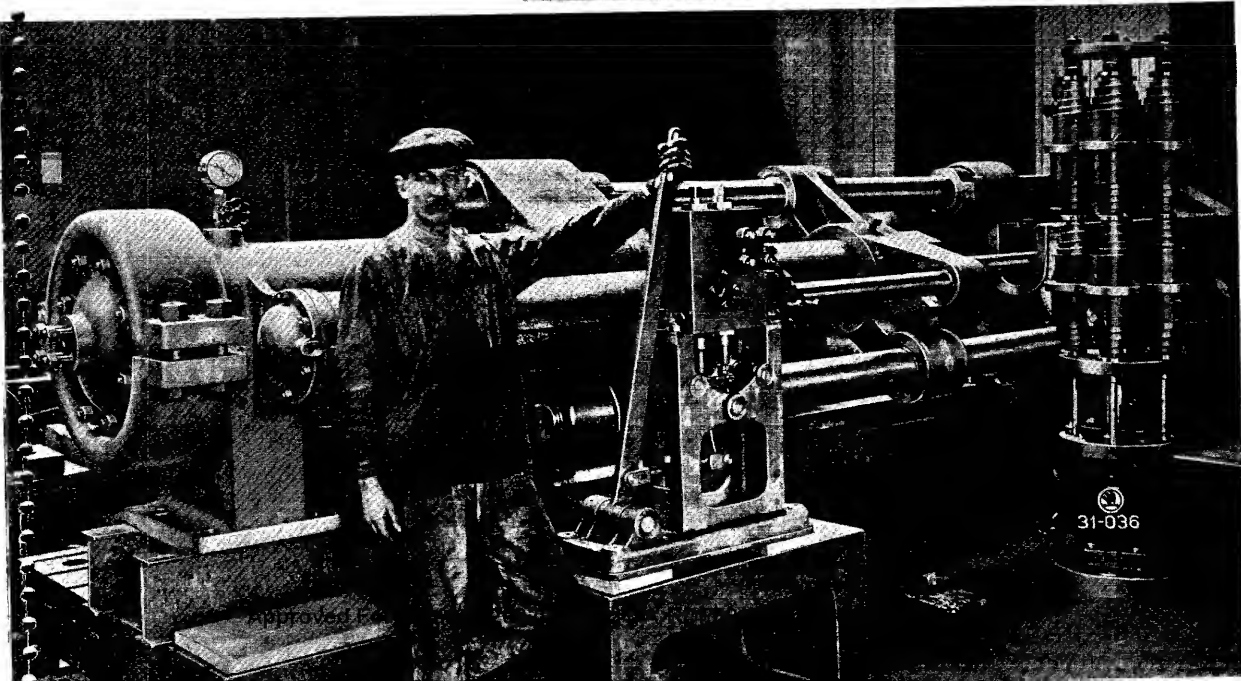
Vertical pump with 8 plungers.

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Vertical hydraulic
punching press.



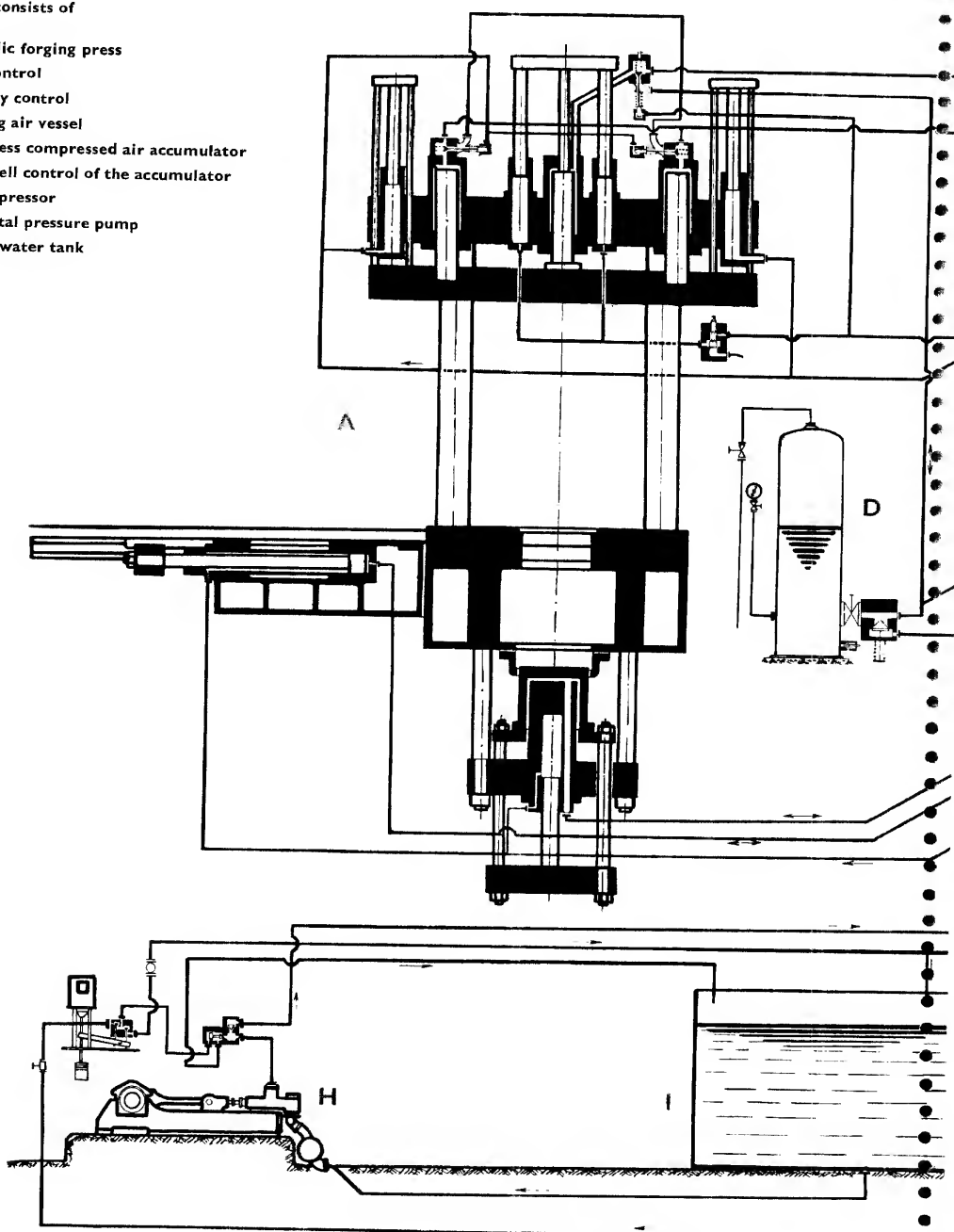
Horizontal hydraulic drawing press.

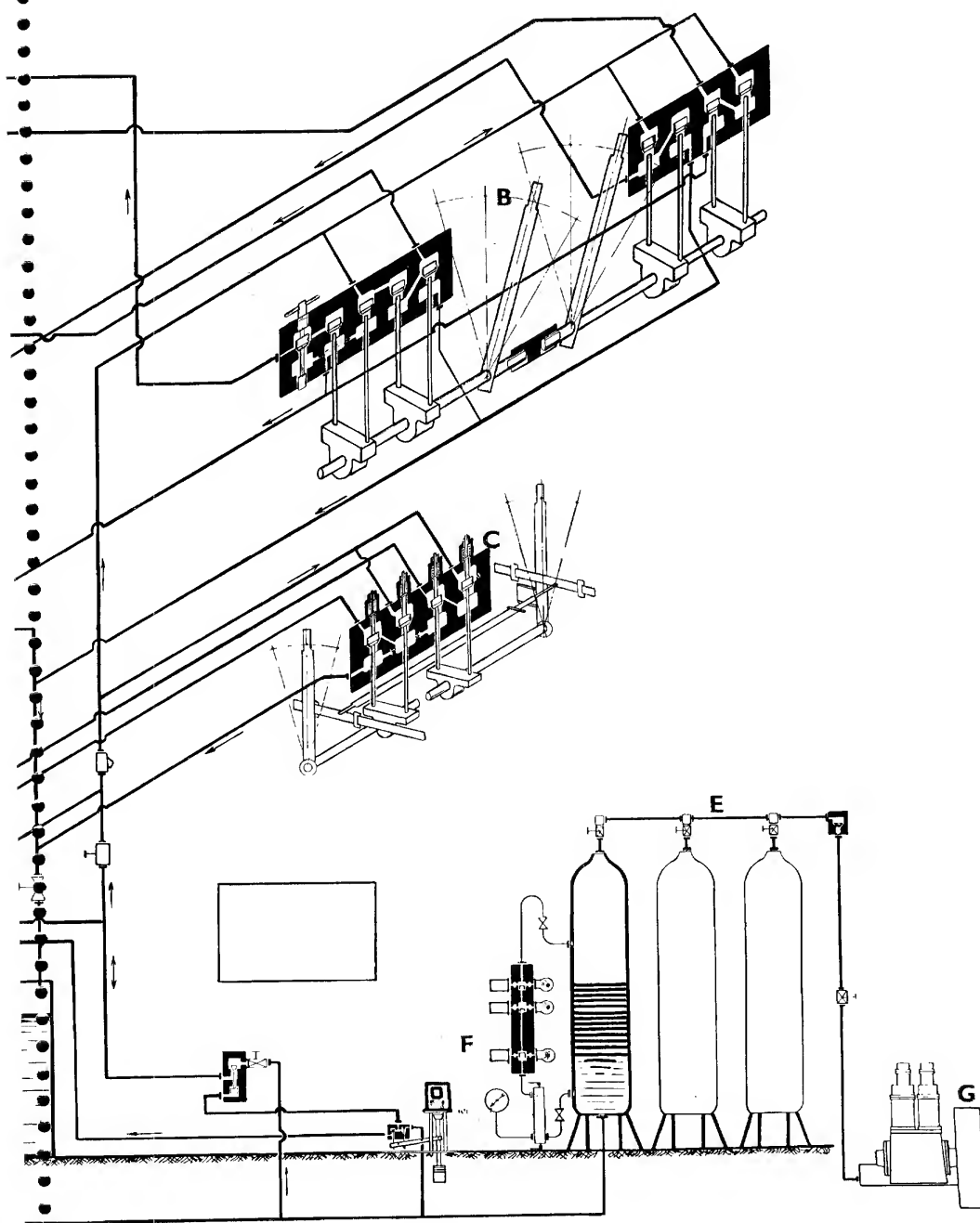


SCHEME OF A FORGING PRESS

The plant consists of

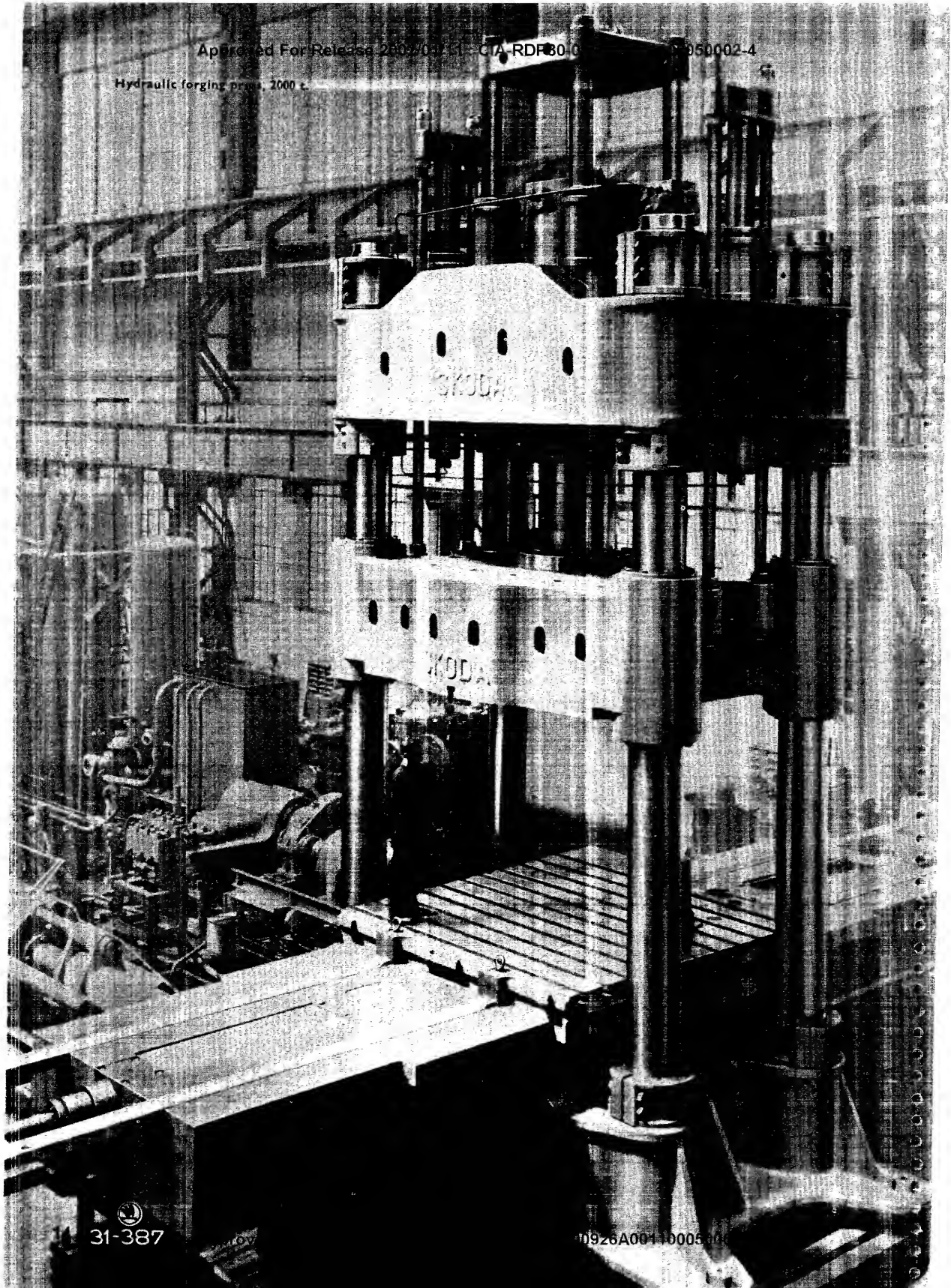
- A hydraulic forging press
- B main control
- C auxiliary control
- D charging air vessel
- E piston-less compressed air accumulator
- F photo-cell control of the accumulator
- G - air compressor
- H - horizontal pressure pump
- I - suction water tank



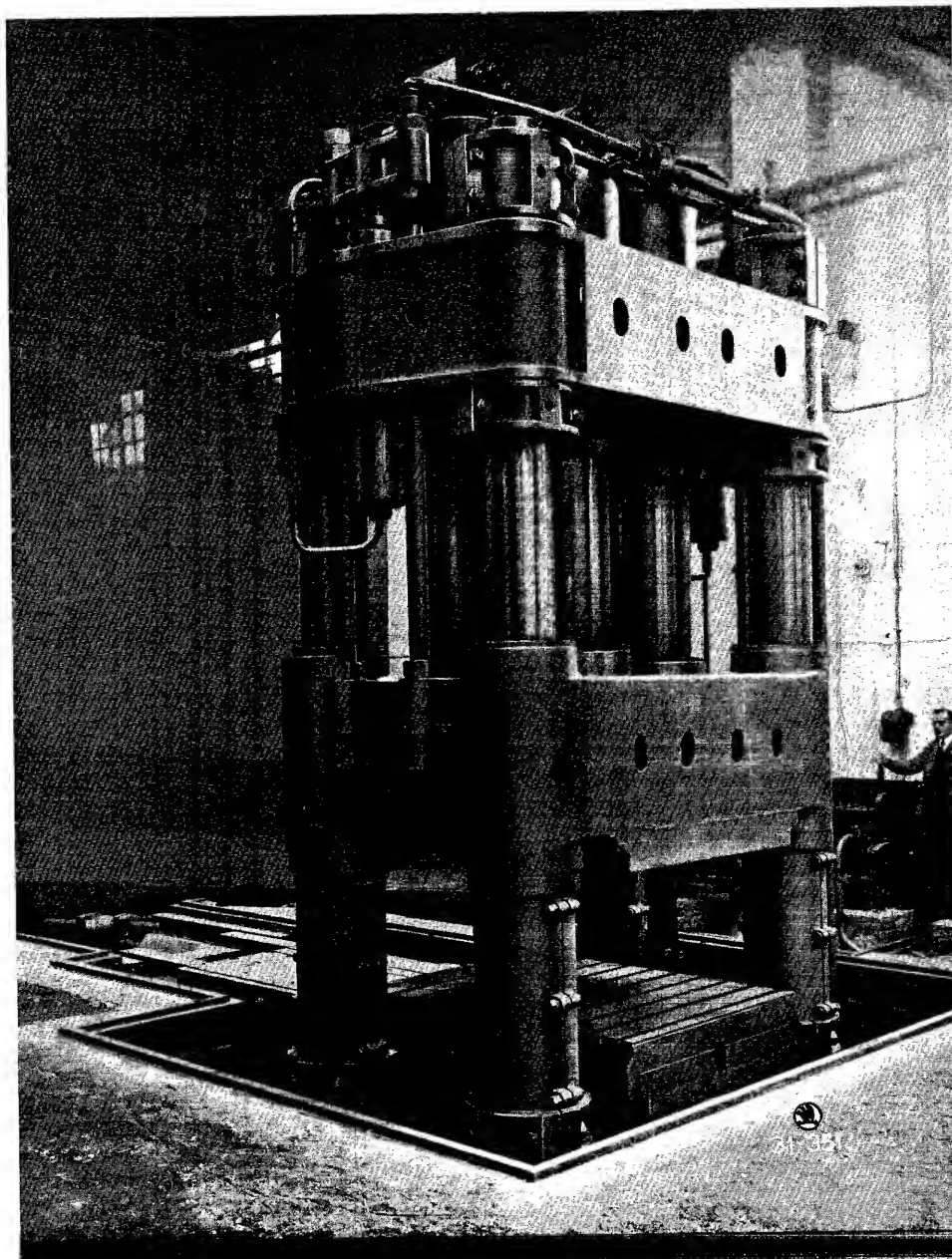


Approved For Release 2002/03/15 : CIA-RDP80-00002-4

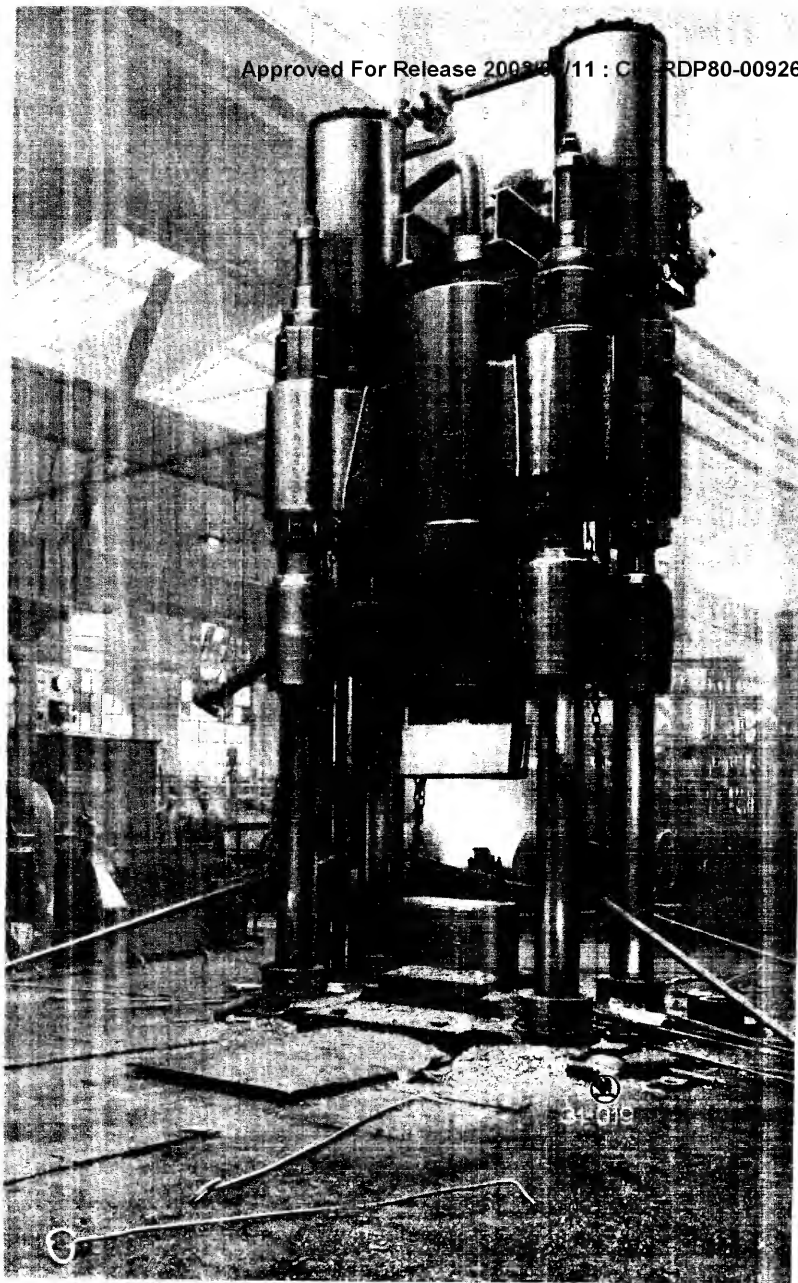
Hydraulic forging press, 2000 t.



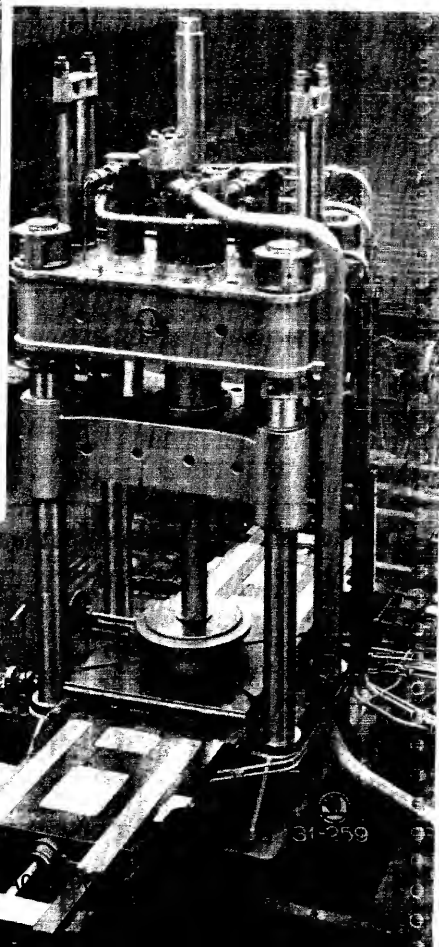
Approved For Release 2002/01/11 : CIA-RDP80-00926A001100050002-4



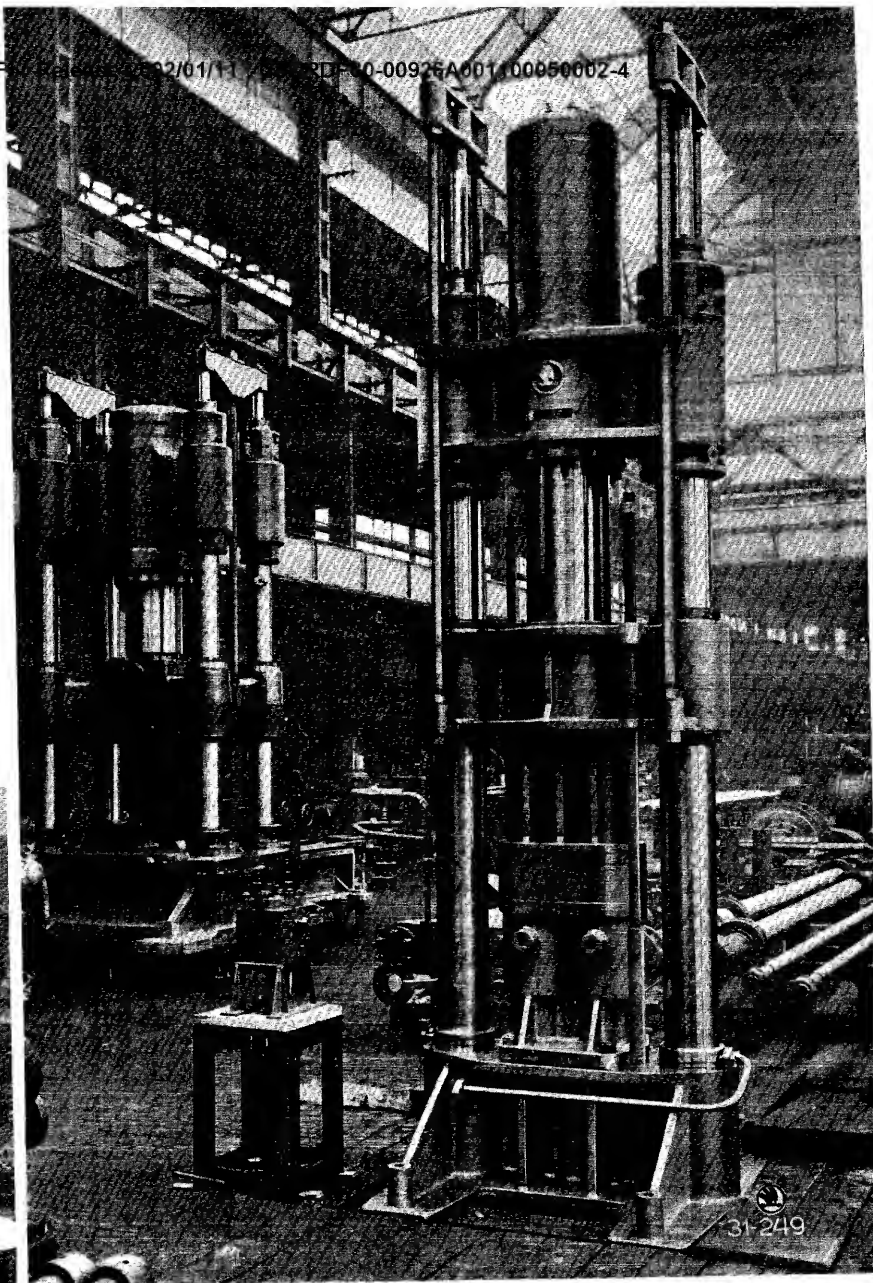
App



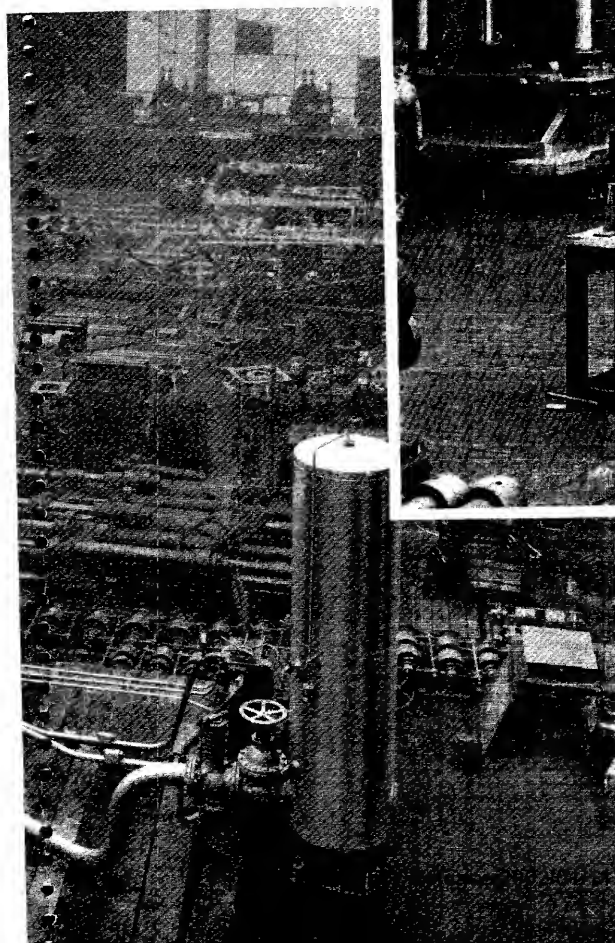
Steam hydraulic forging press, 1000 t.



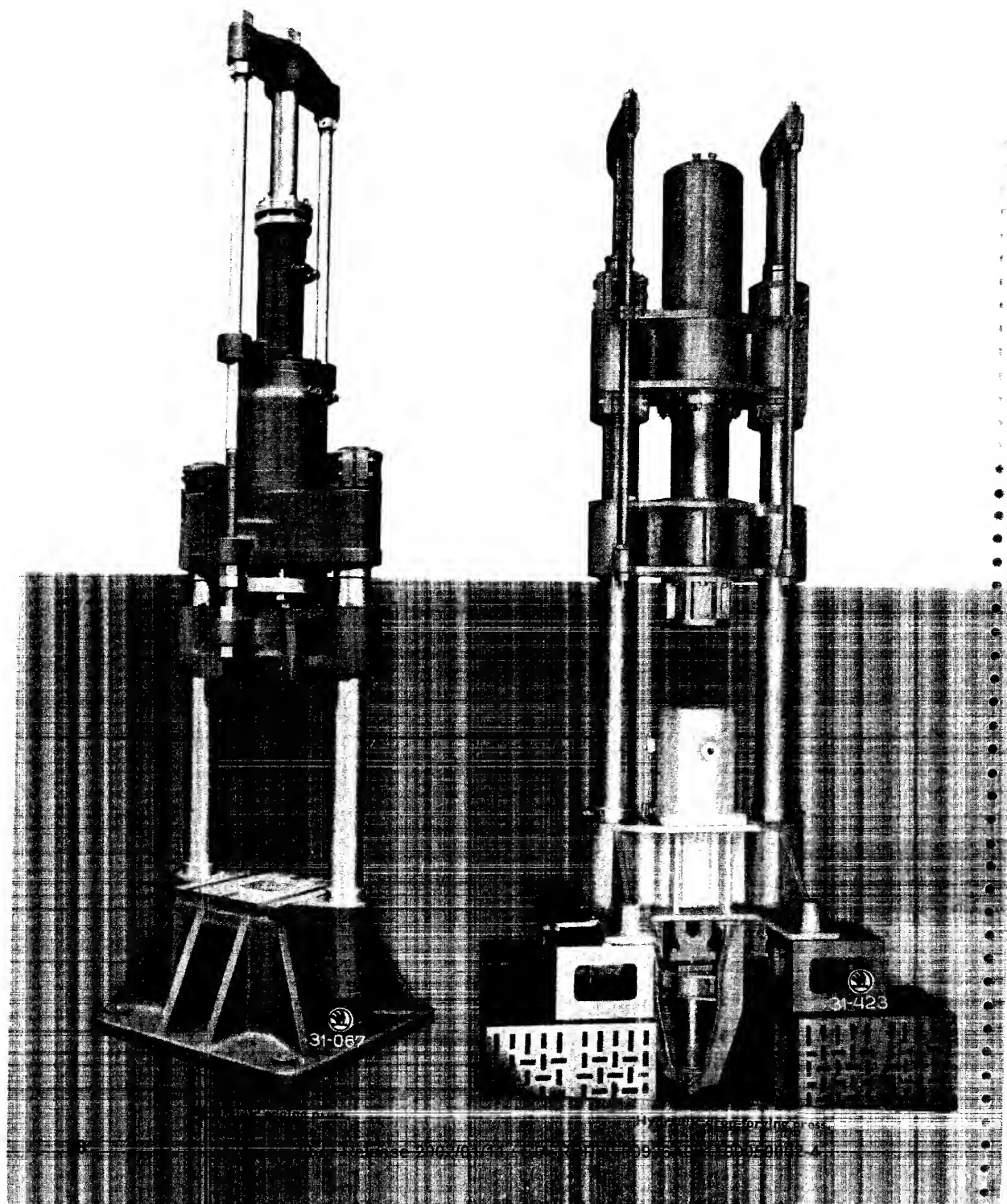
Universal hydraulic forging press.

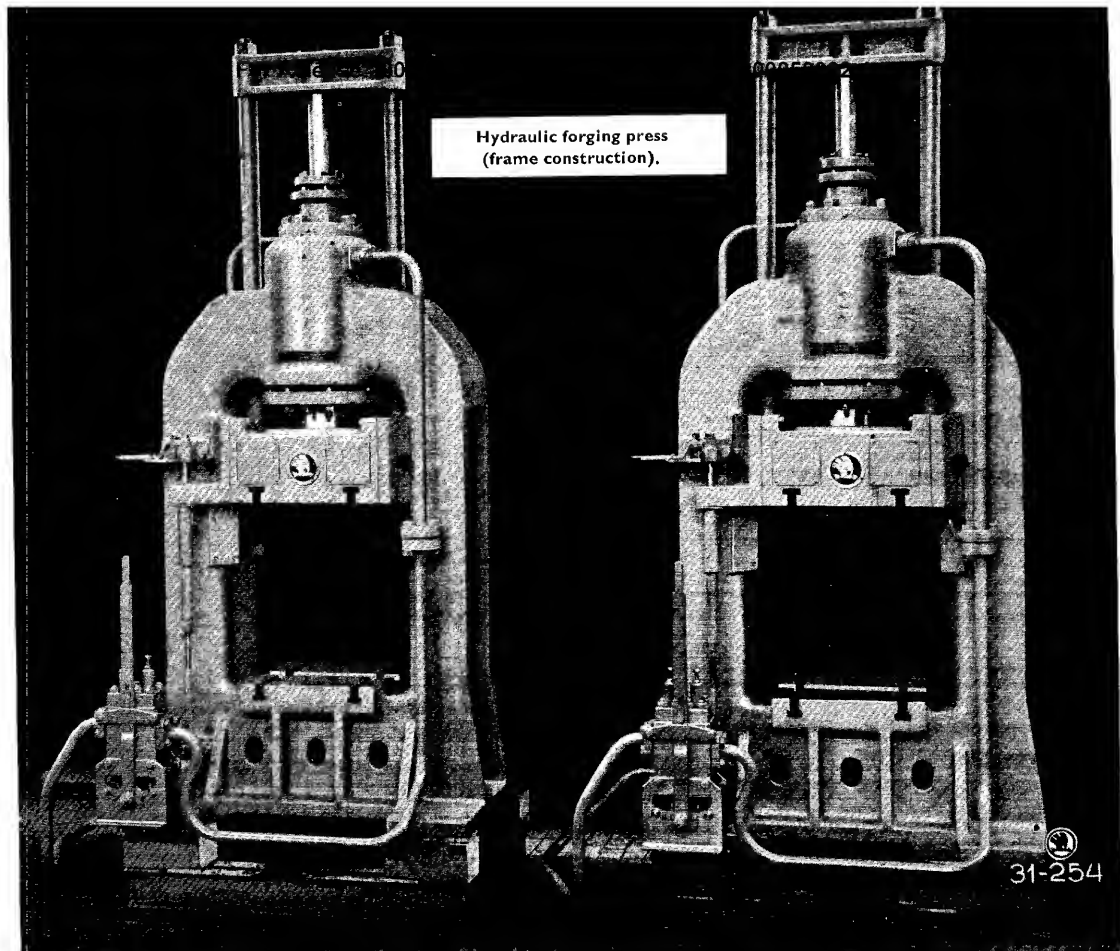


Hydraulic presses 350 and 600 t.



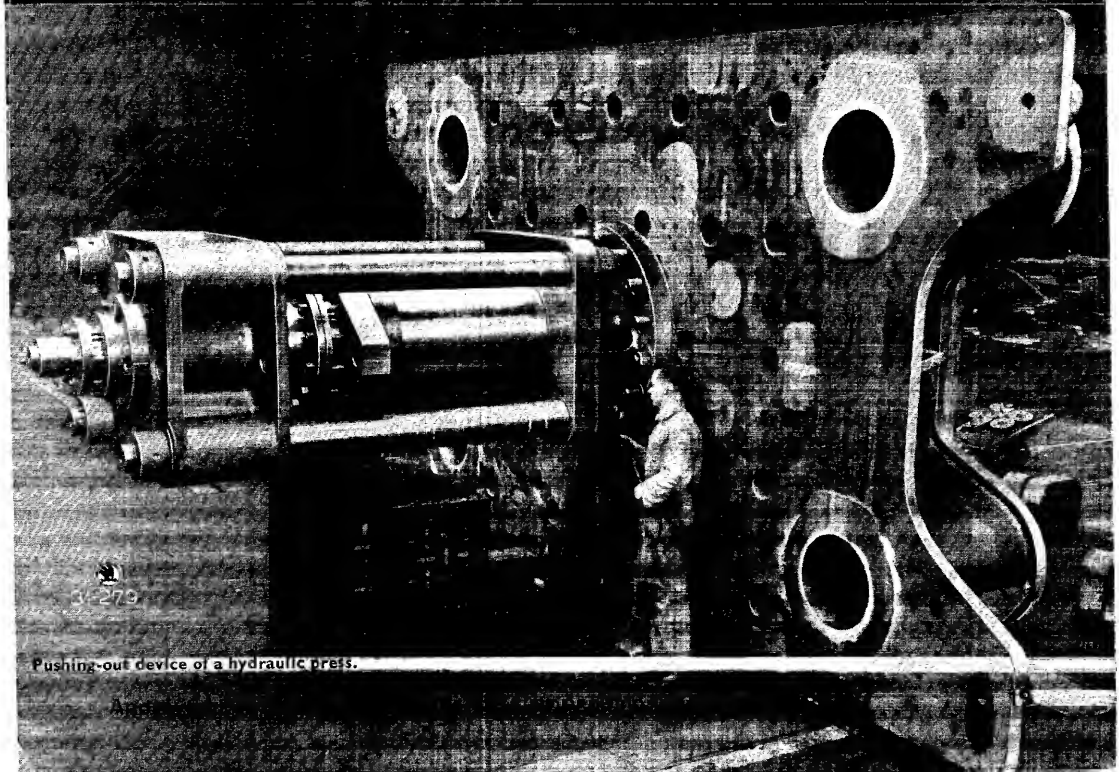
Approved For Release 2002/01/11 : CIA-RDP80-00926A001100050002-4





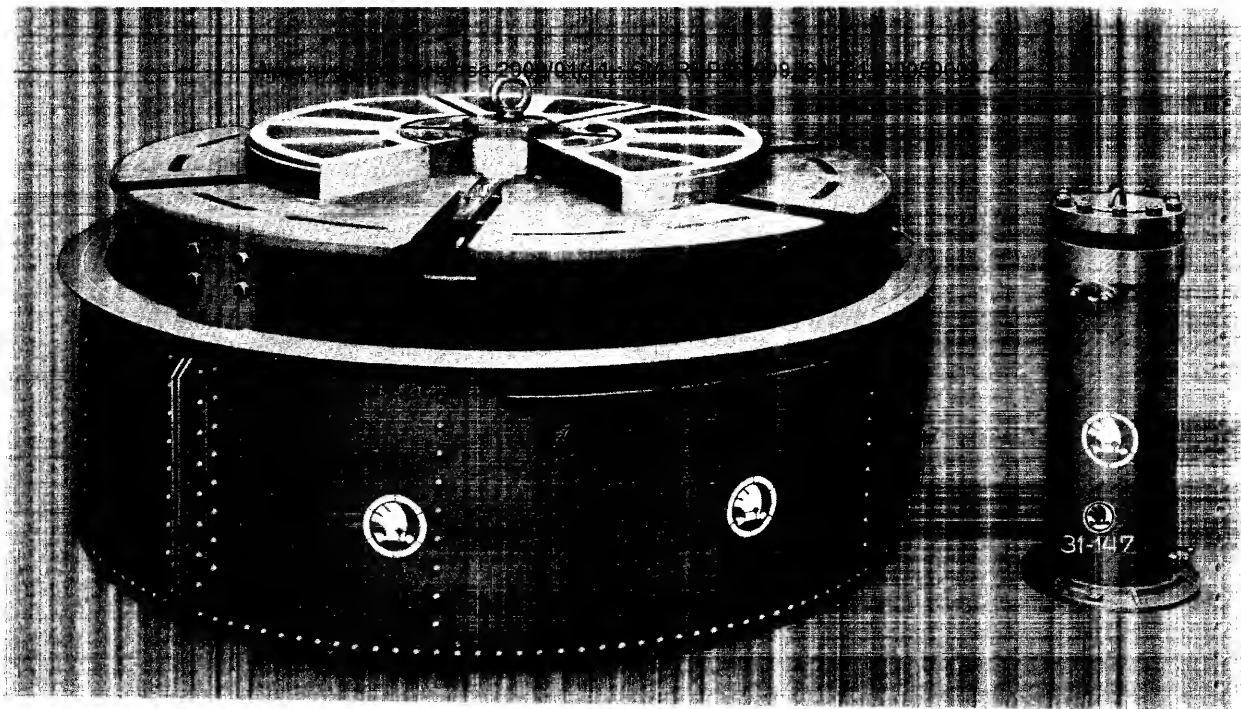
Hydraulic forging press
(frame construction).

31-254

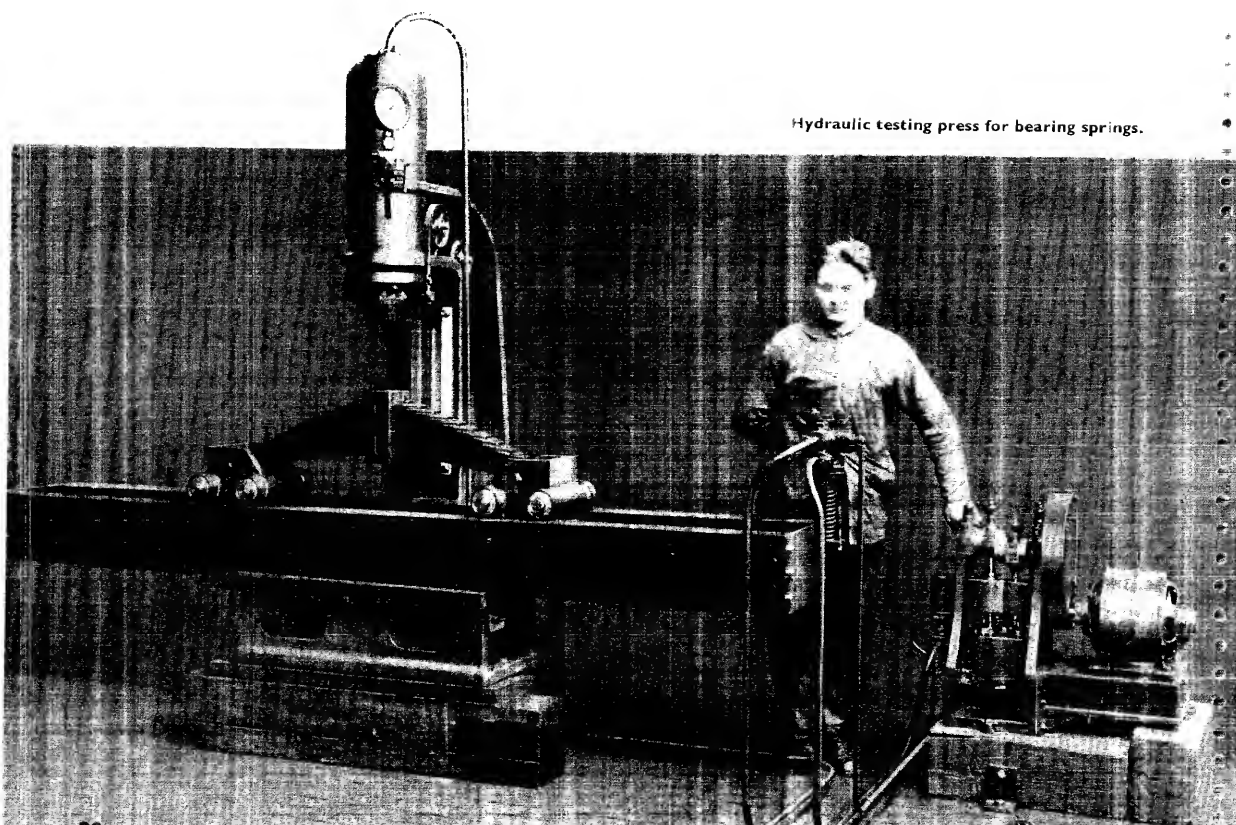


Pushing-out device of a hydraulic press.

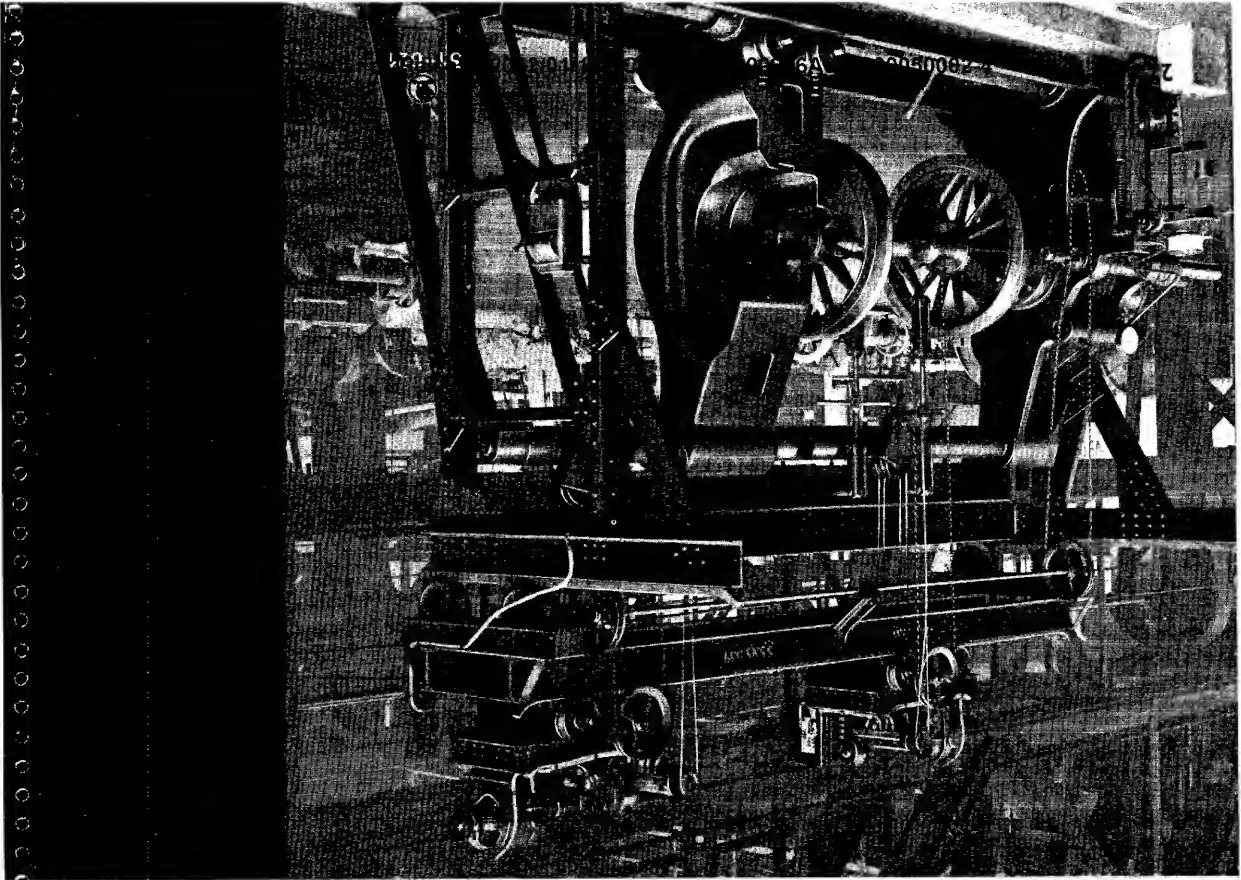
31-279



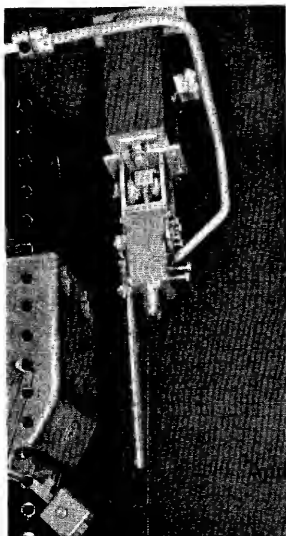
Hydraulic press for centering railway wagon tyres.



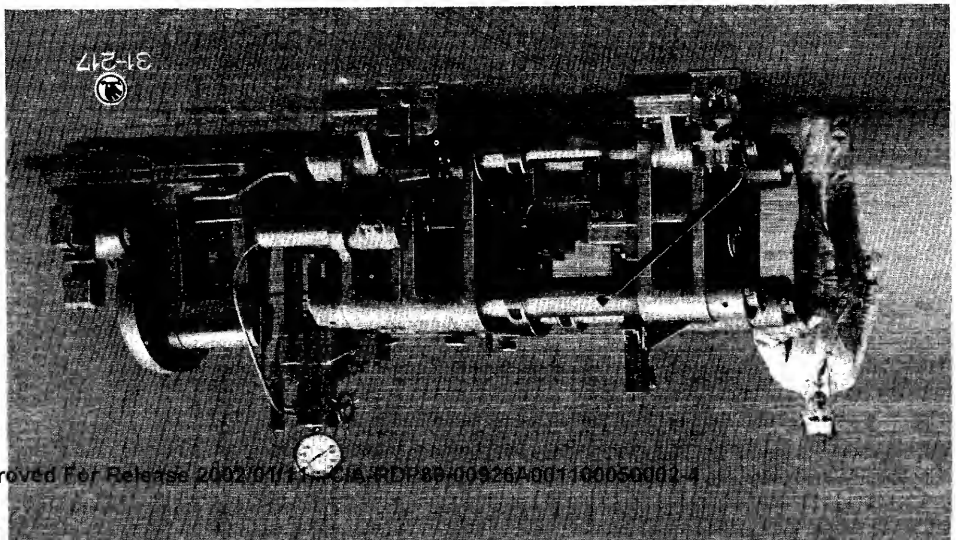
Hydraulic testing press for bearing springs.



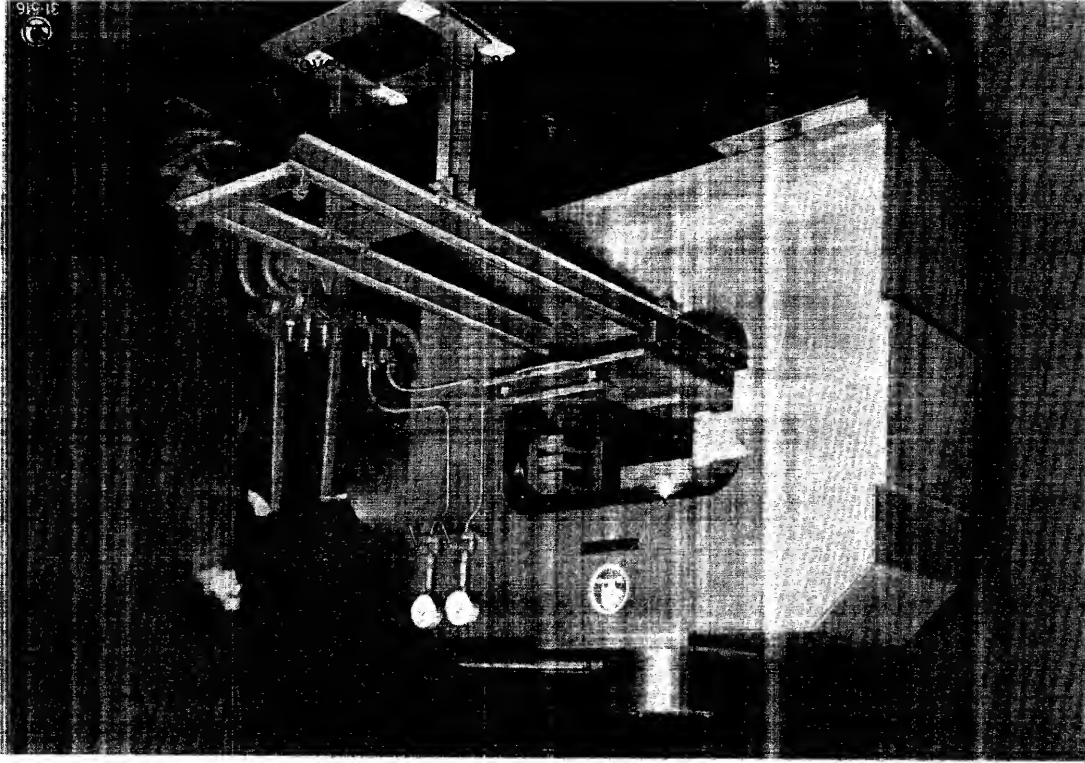
Hydraulic press with electric crane for pressing on and off locomotive wheels.



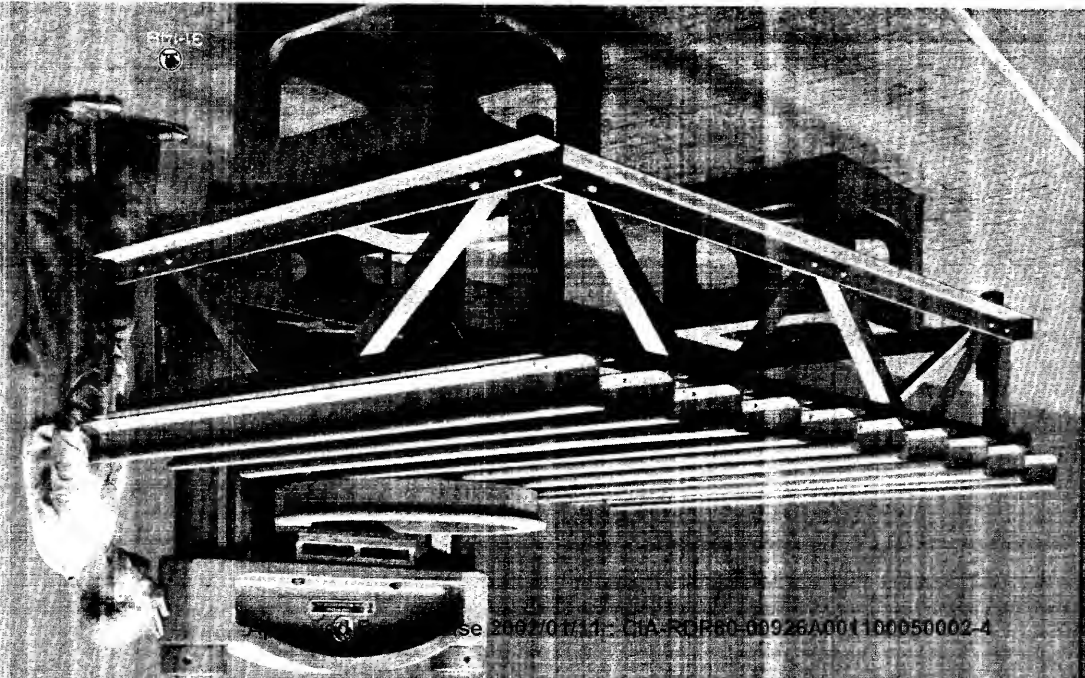
Hydraulic block breaker.
Frame construction.



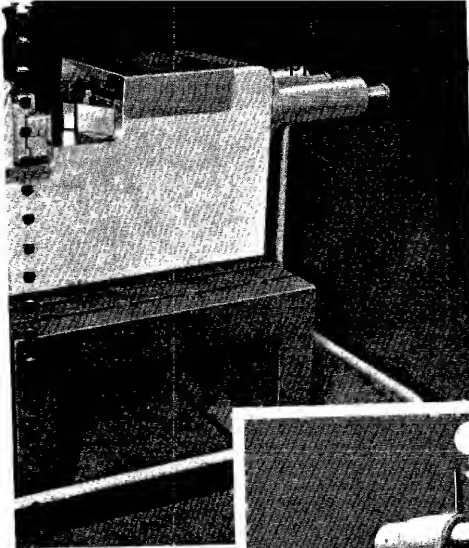
Four-column hydraulic block breaker.



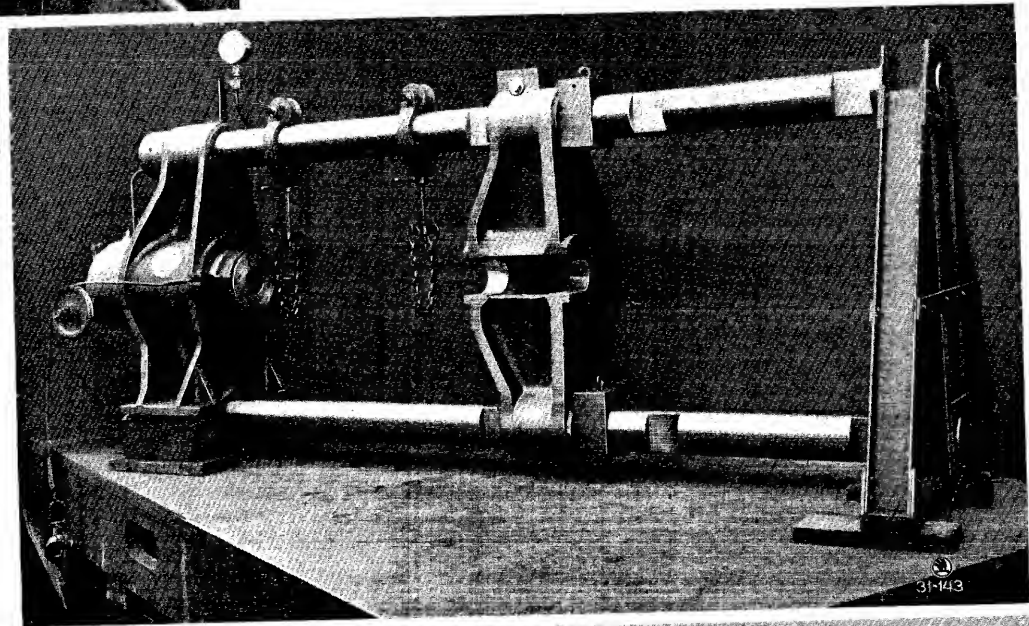
Frame-type hydraulic press for pressing on of spring collars.



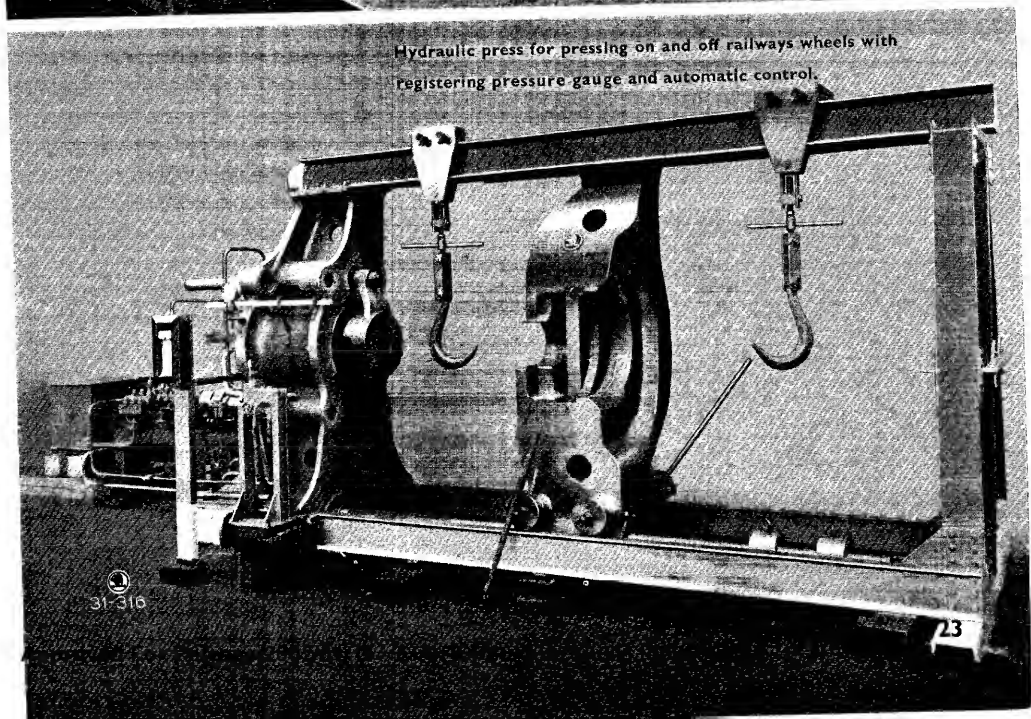
Hydraulic punching press for locomotive wheels.



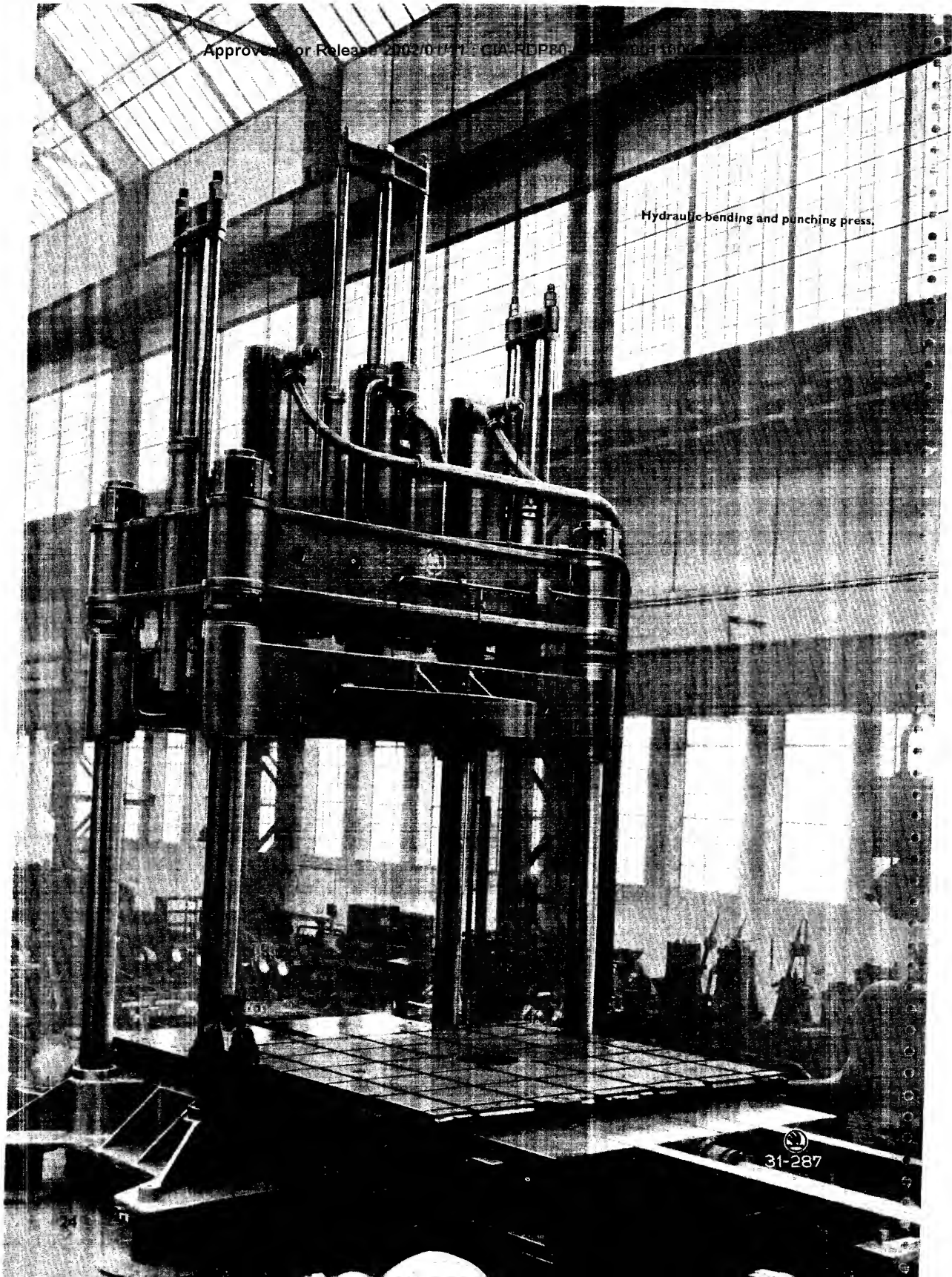
Hydraulic press for pressing on and off railway wheels.



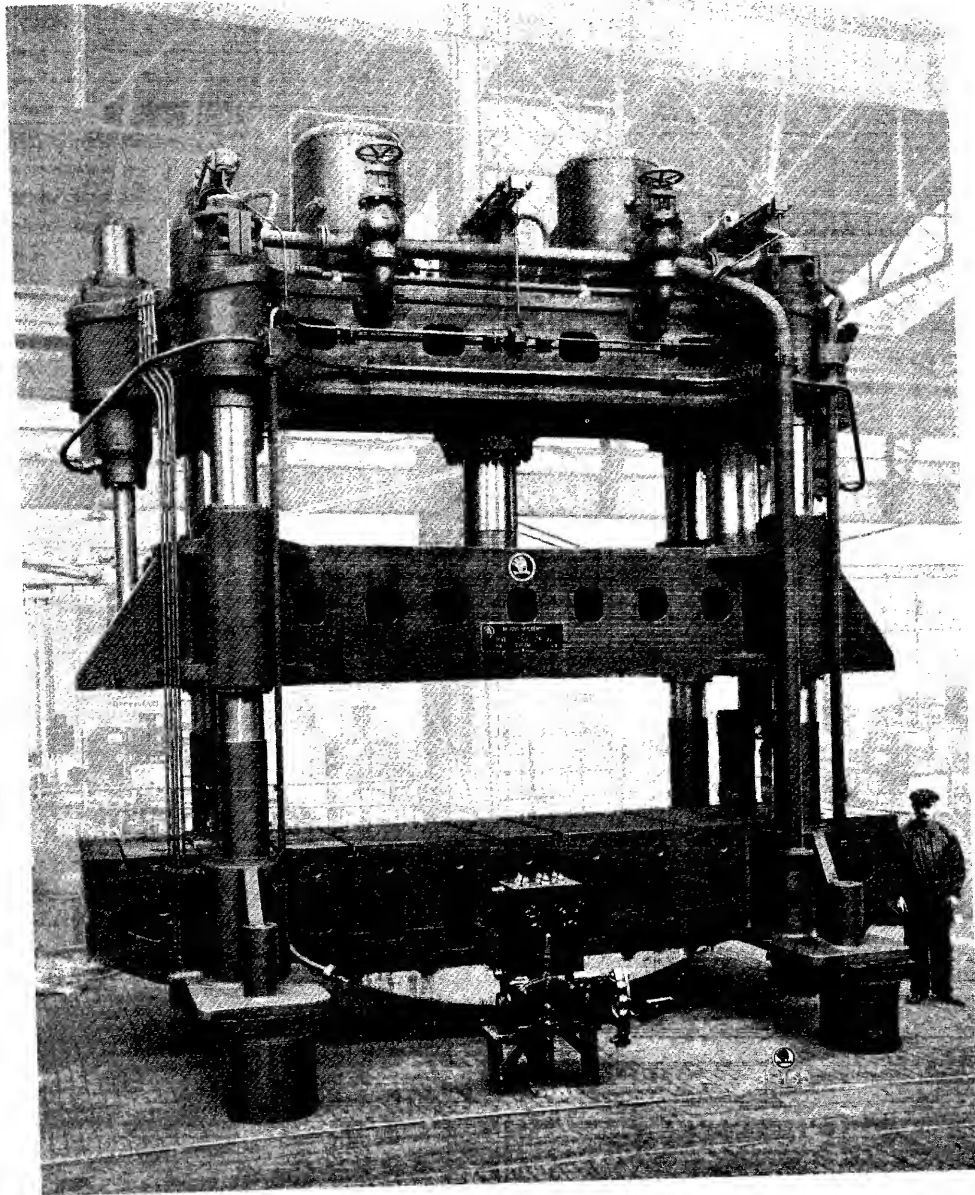
Hydraulic press for pressing on and off railways wheels with registering pressure gauge and automatic control.



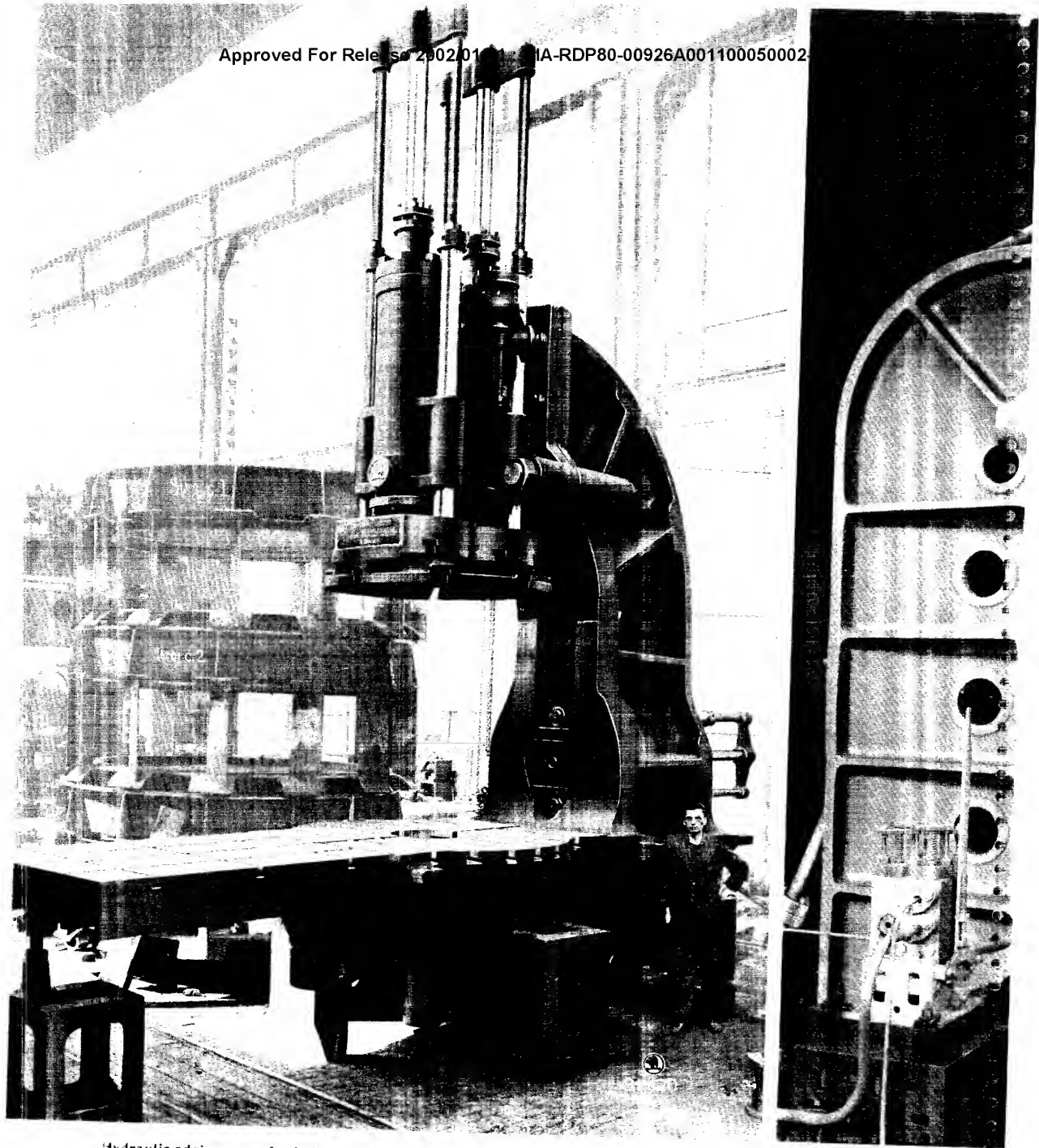
Hydraulic bending and punching press.



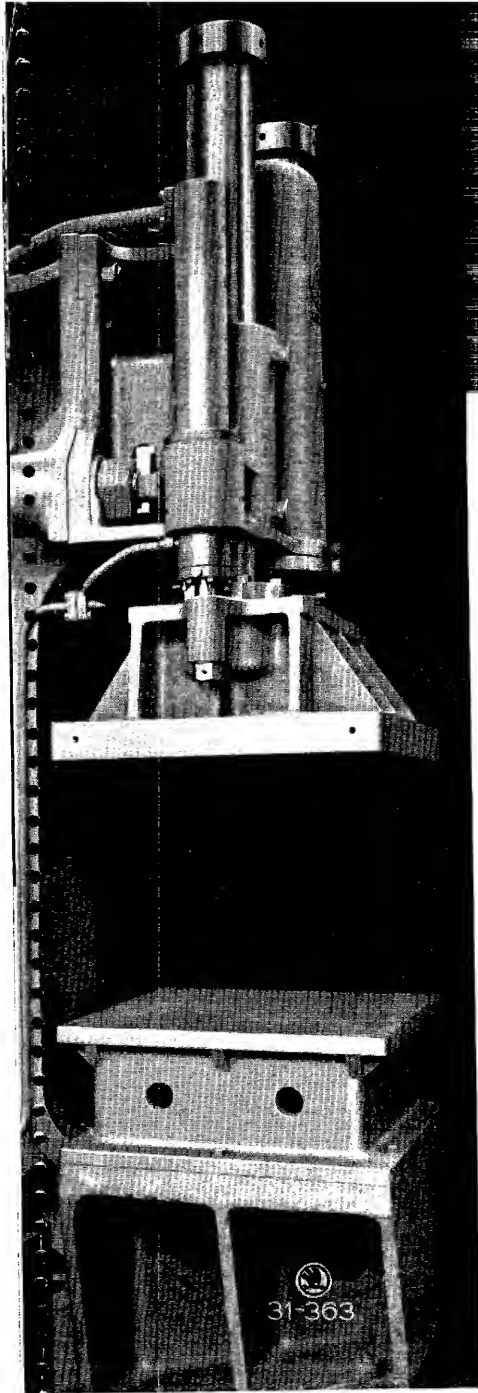
HYDRAULIC SHEET IRON PRESSES



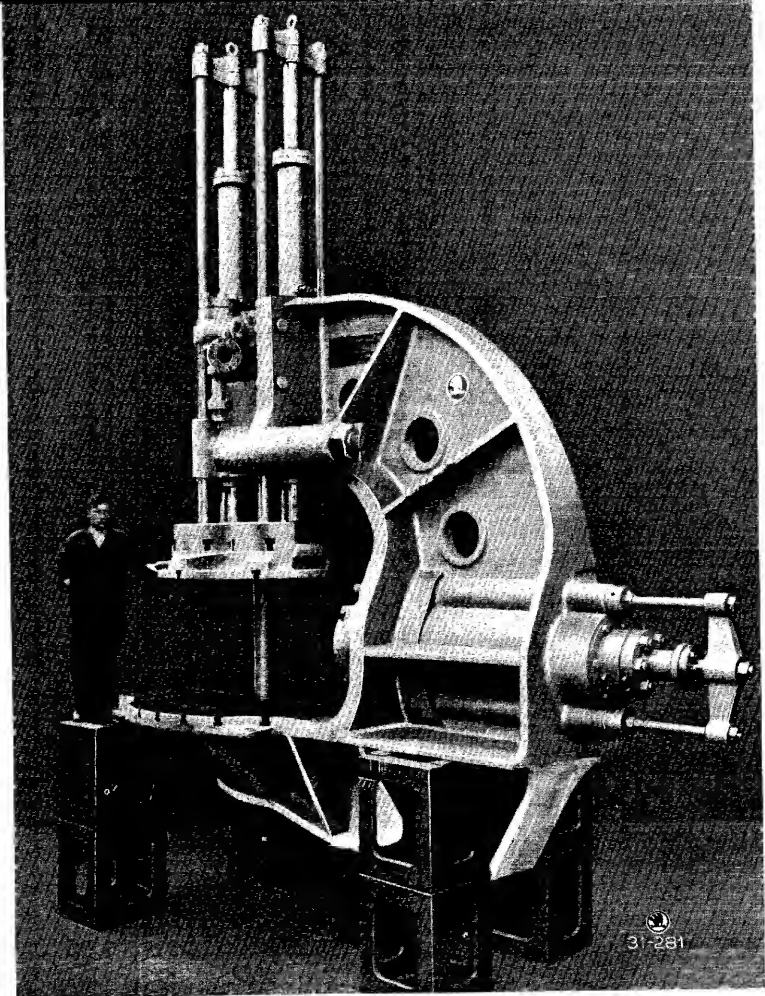
Three-stage hydraulic sheet iron press.



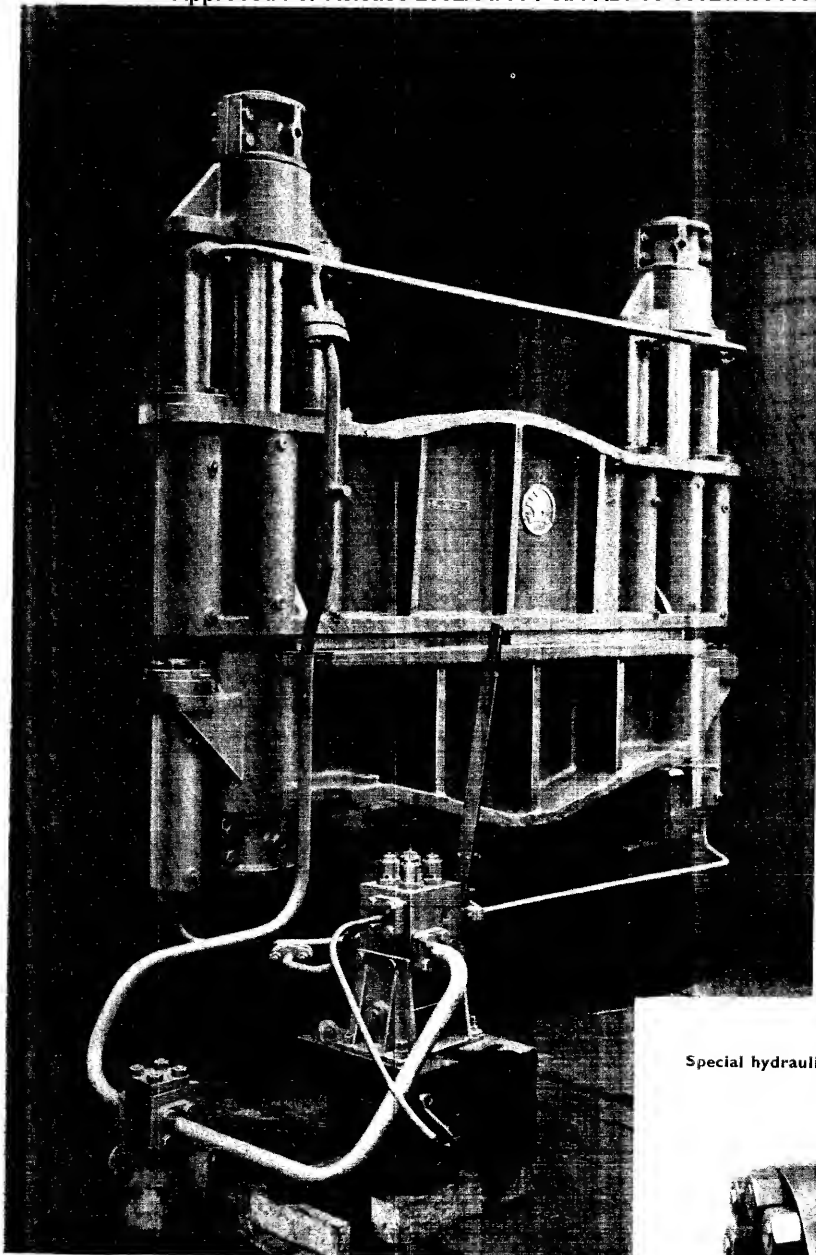
Hydraulic edging press for boiler bottoms.



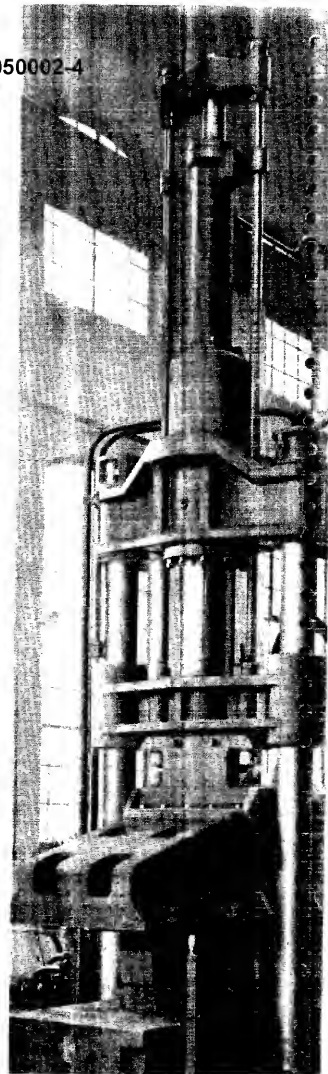
Hydraulic press (C-shape) for bending and straightening sheet iron.



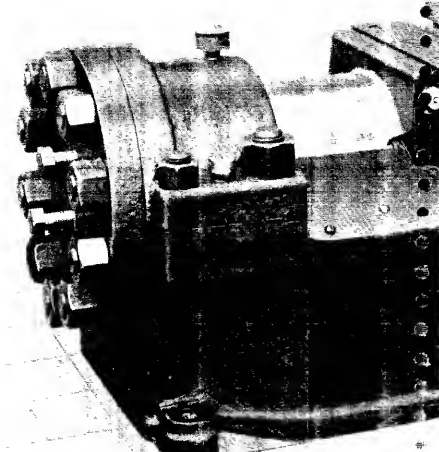
Hydraulic press for boiler bottoms (edging press).



Hydraulic press for bending and straightening of sheet iron.

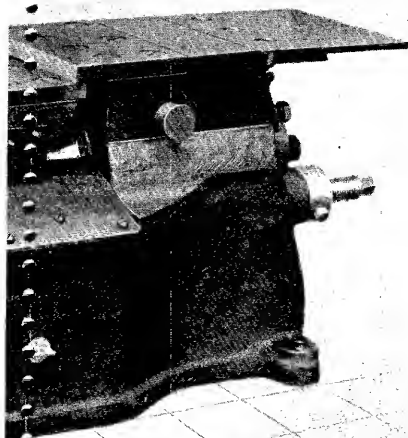


Special hydraulic sheet iron shears.

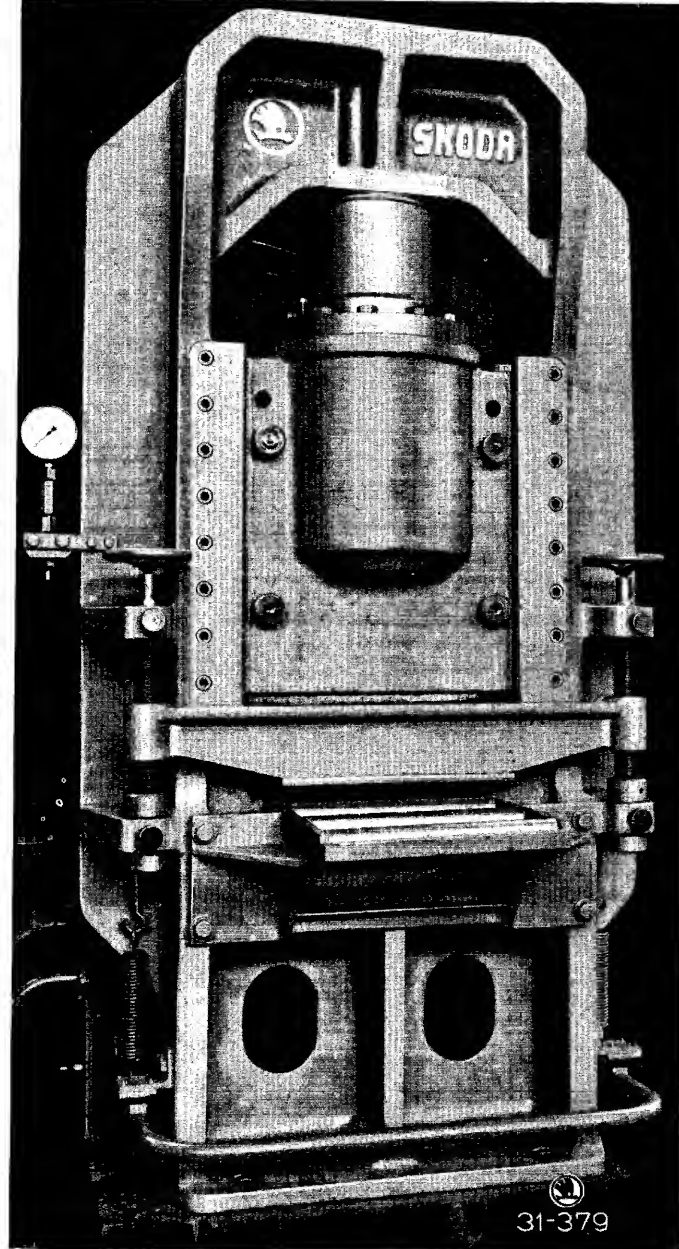




Hydraulic press for sheet iron frames
with sliding plunger traverse press
300 c.



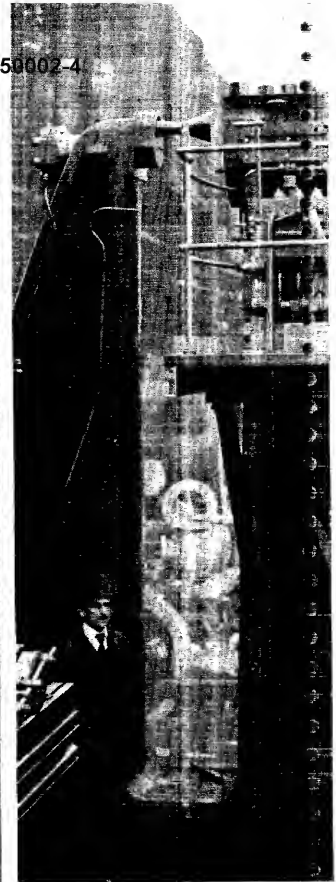
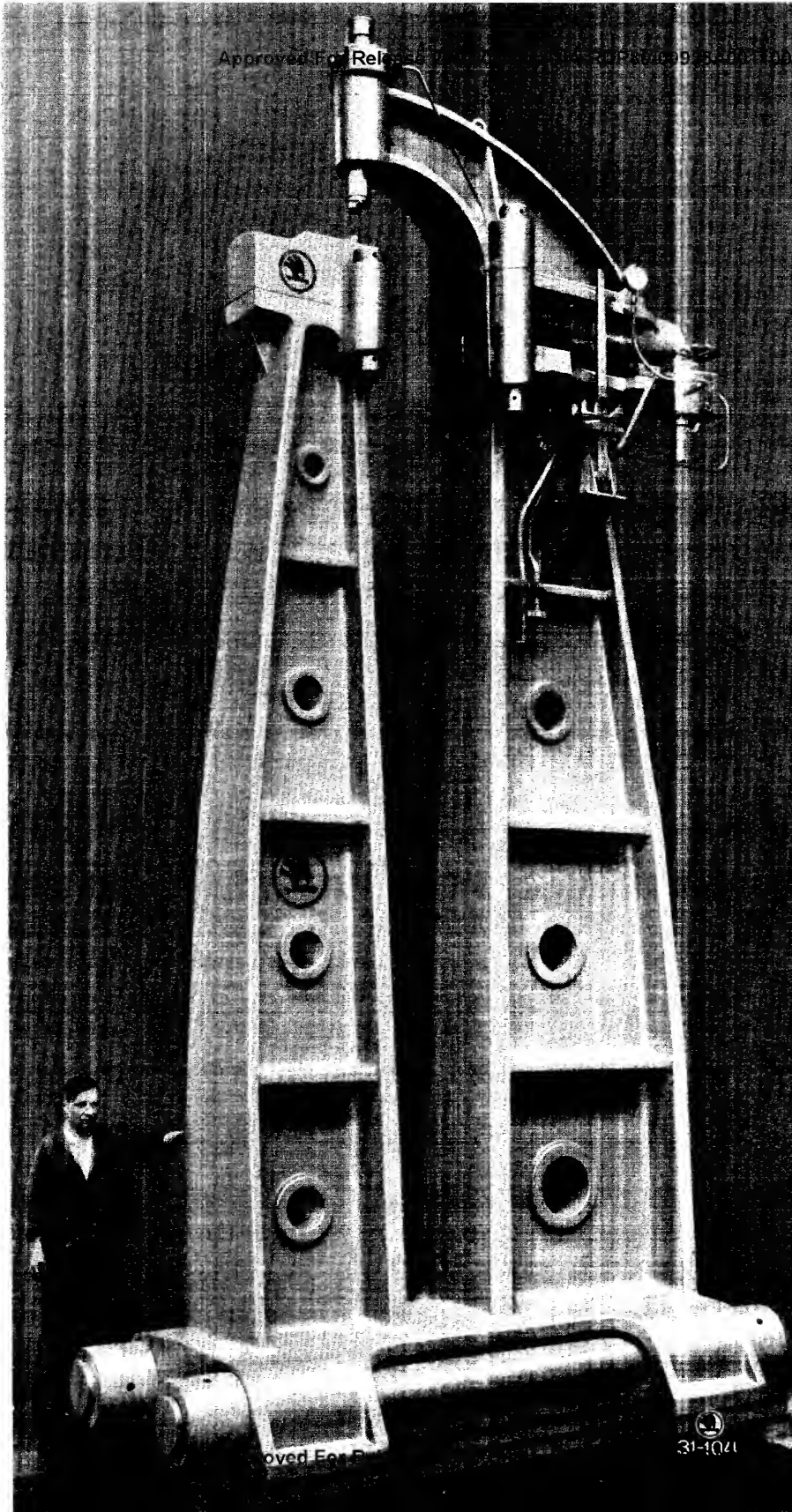
31-125



Vertical sheet iron shears.

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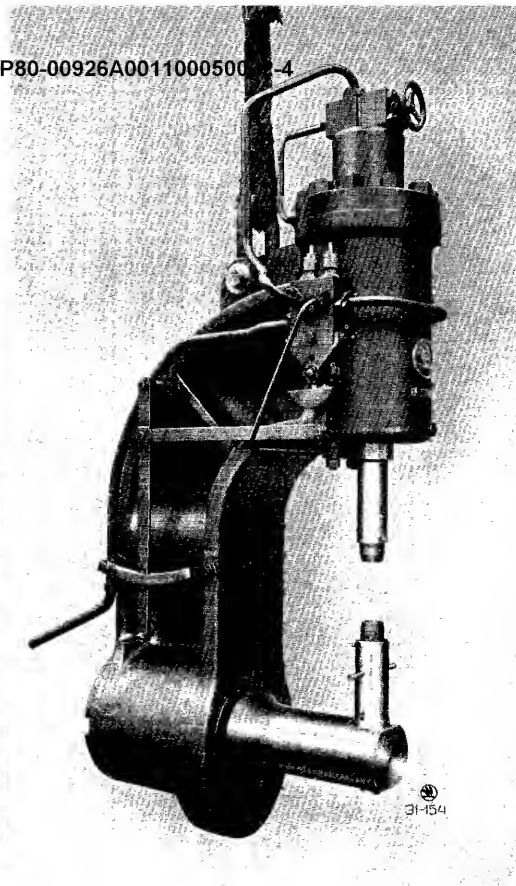
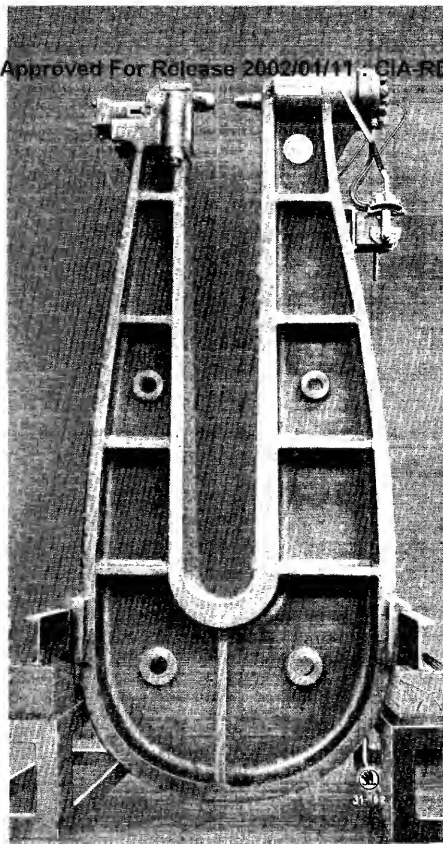
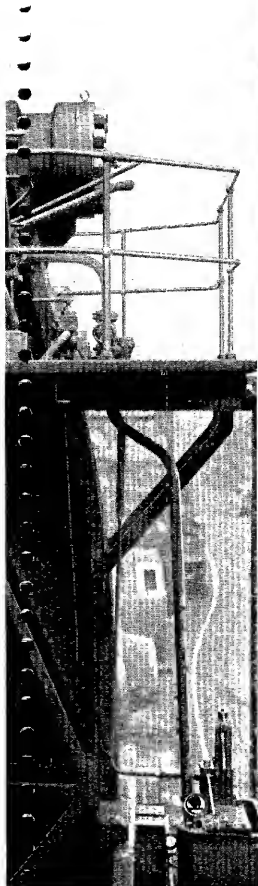
Stationary hydraulic riveting machine for marine boilers.

Stationary hydraulic riveting machine for boiler shells and bottoms.

Approved For Release

31-1021

0002-4



Stationary hydraulic riveting machine.

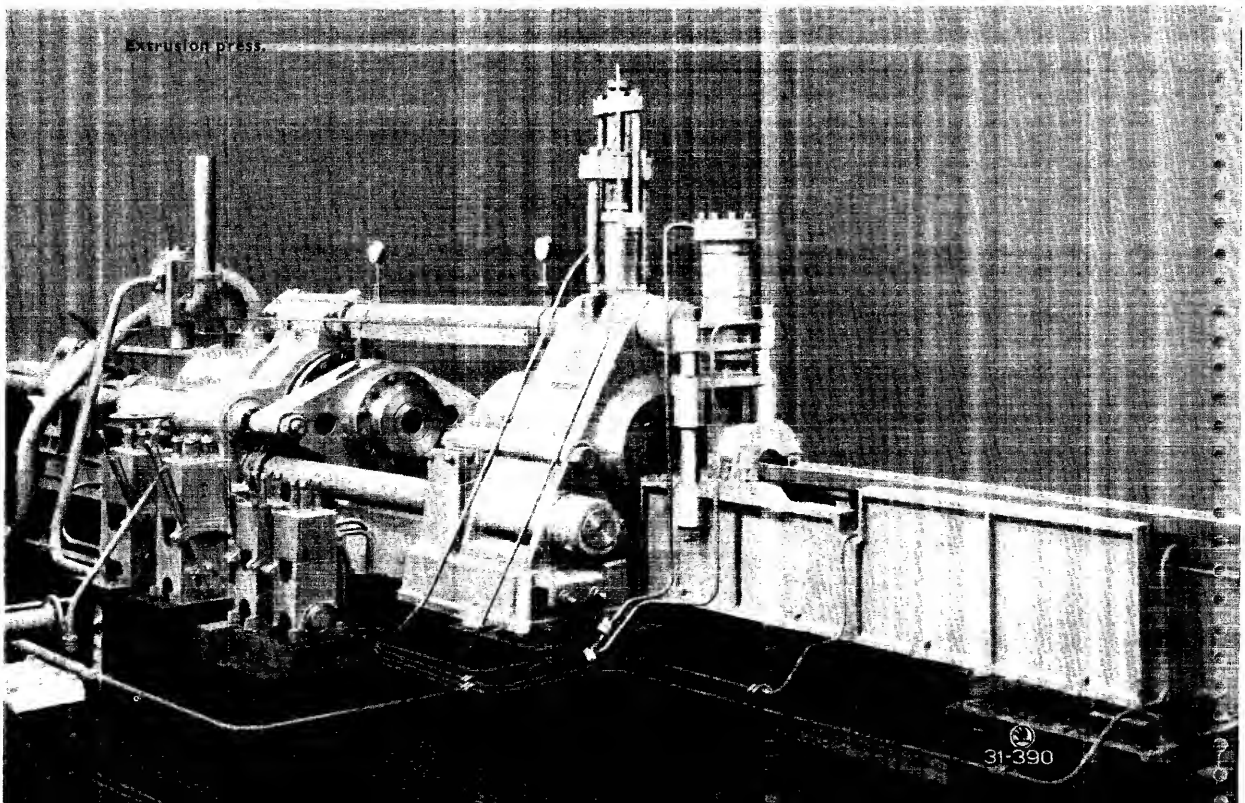
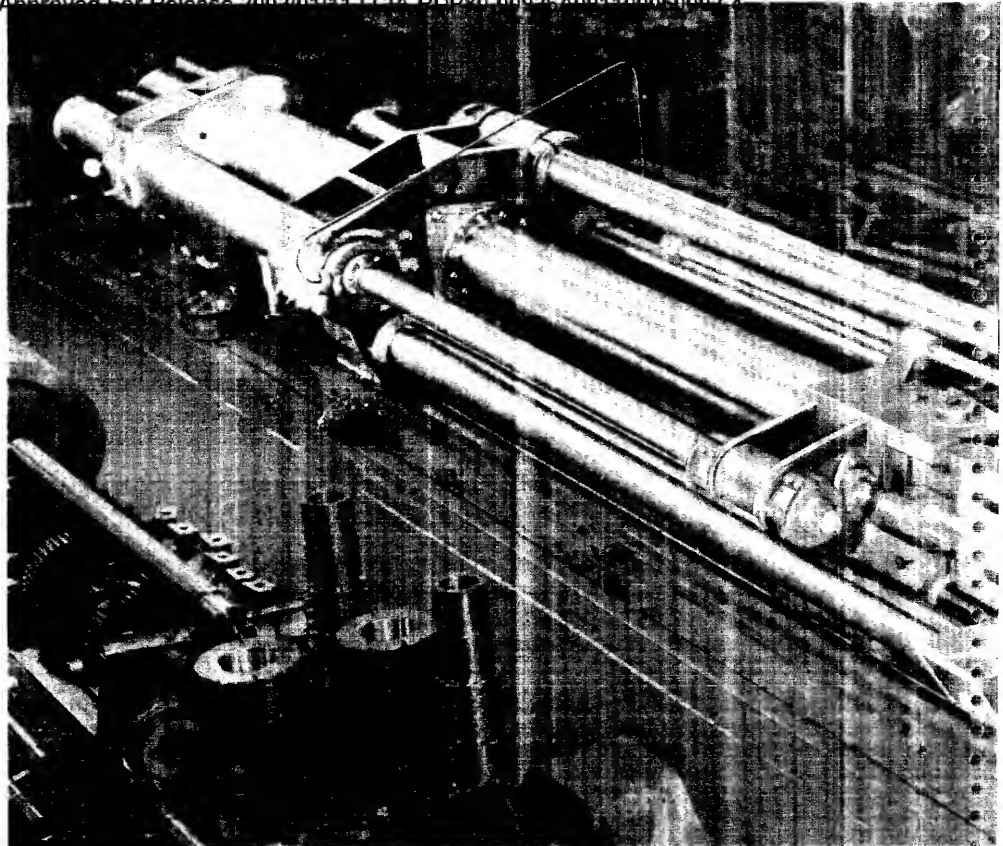
Special portable hydraulic riveting machine.

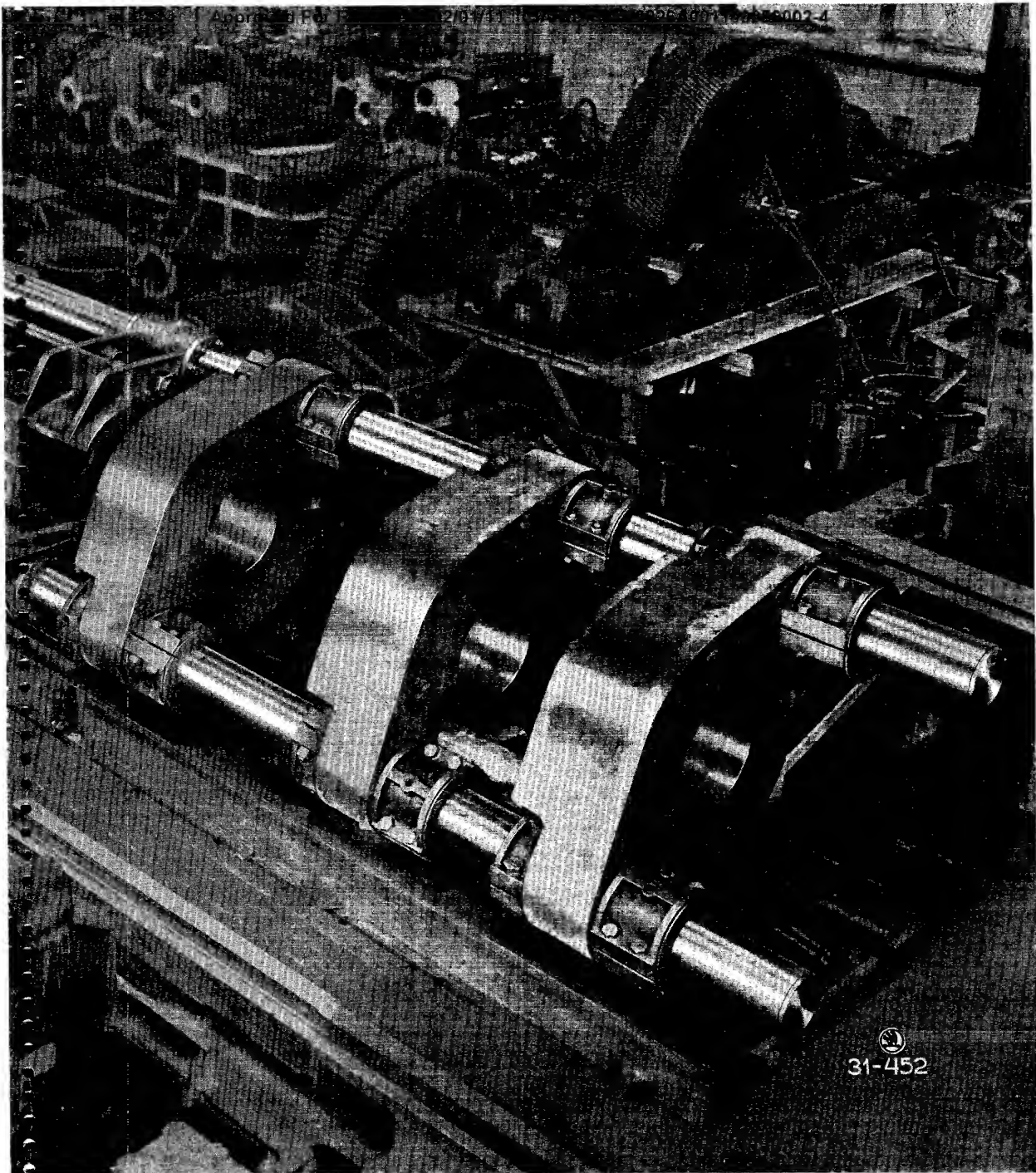
RIVETING MACHINES



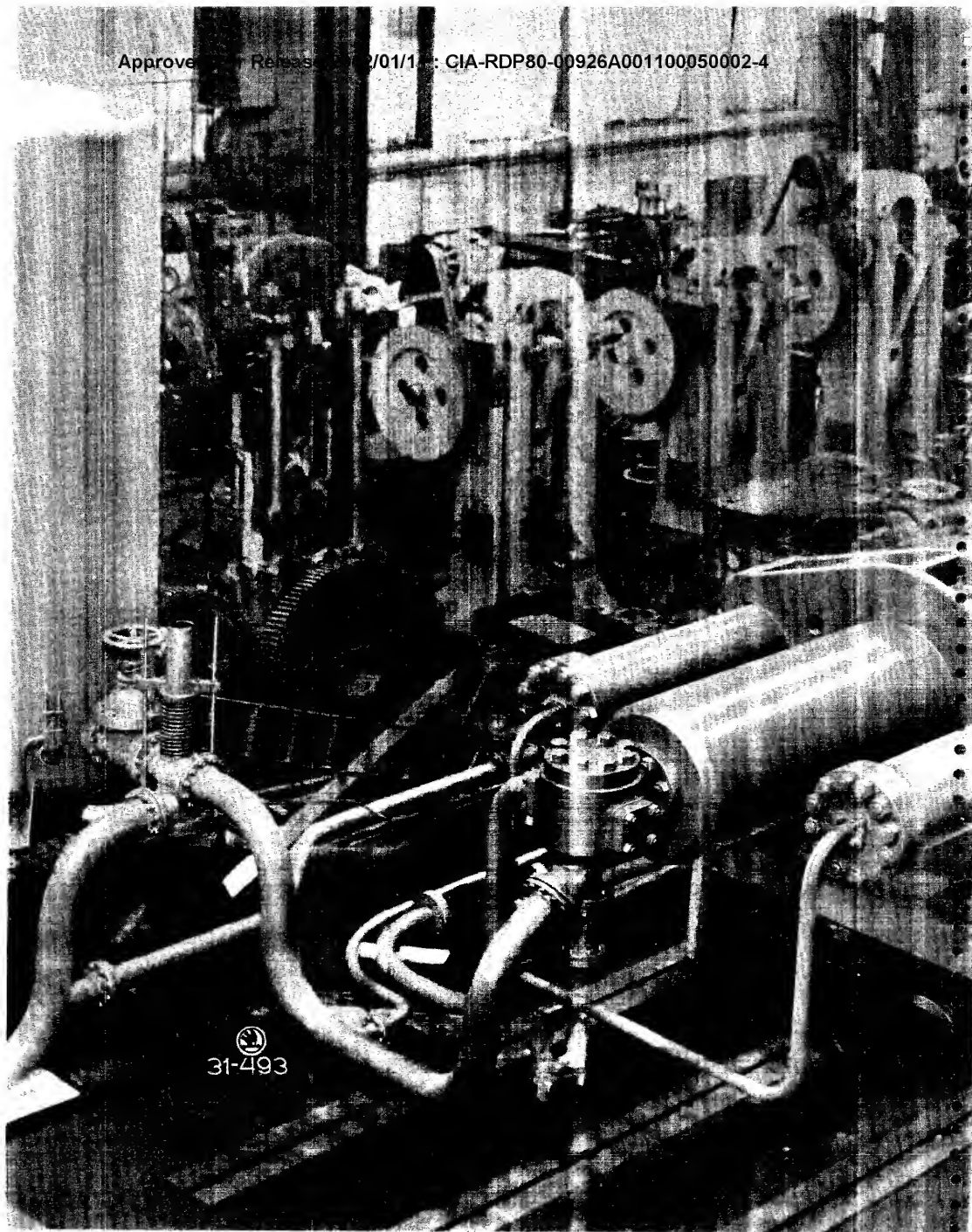
Frame of a riveting machine.

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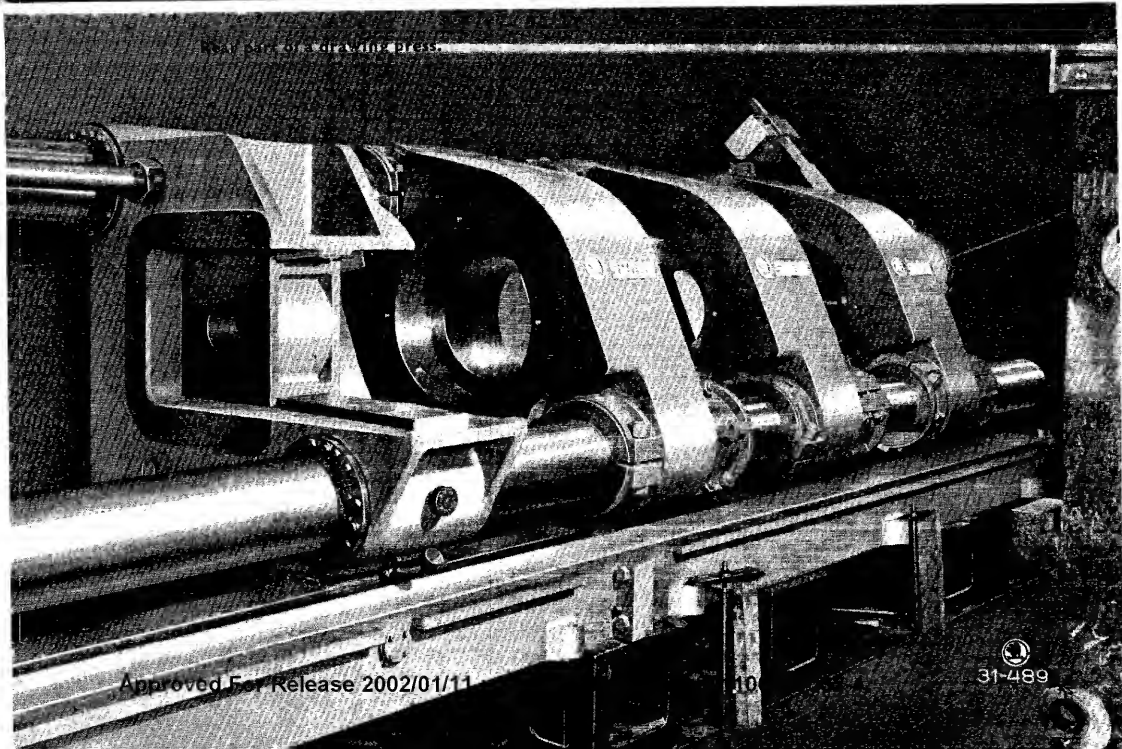
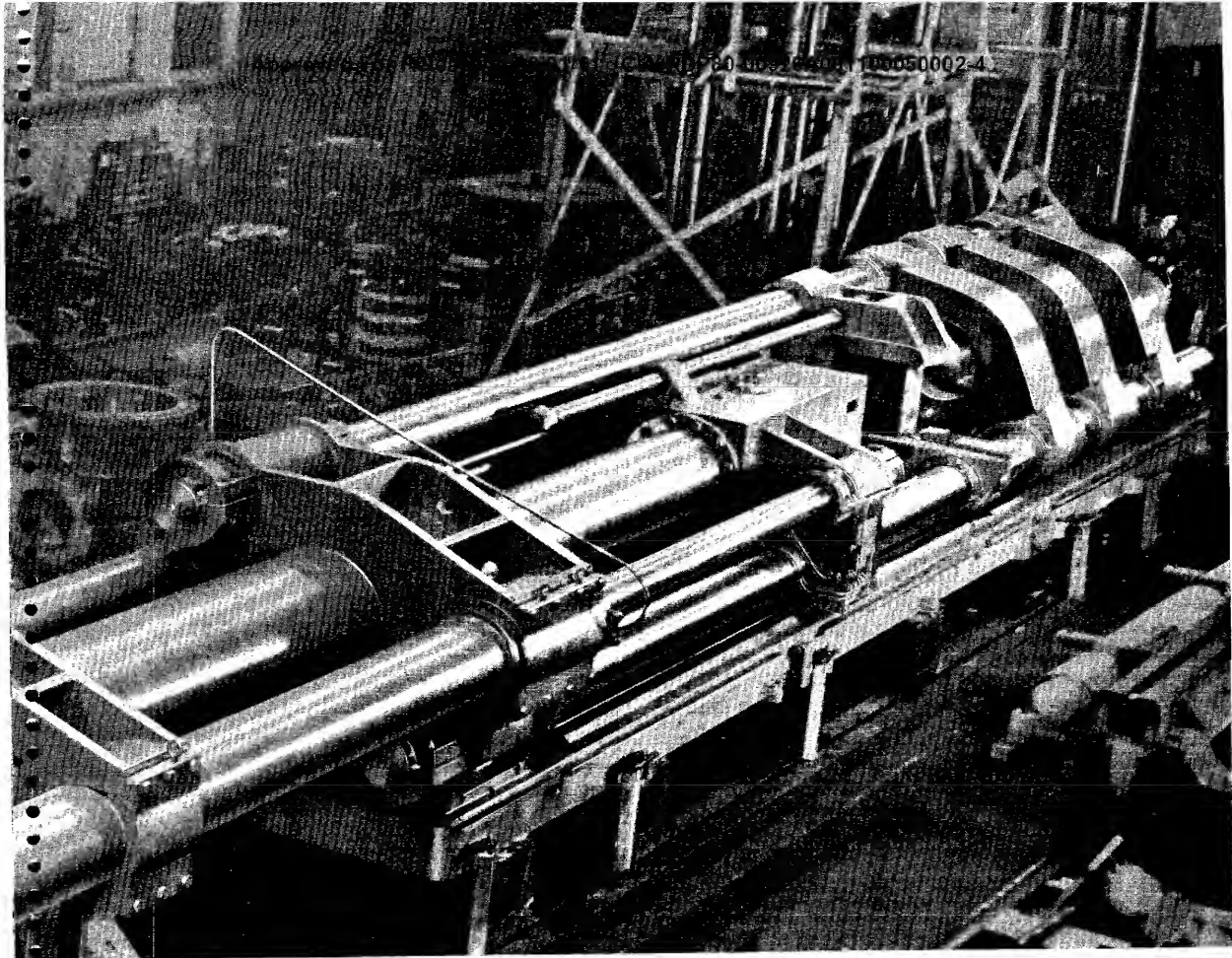




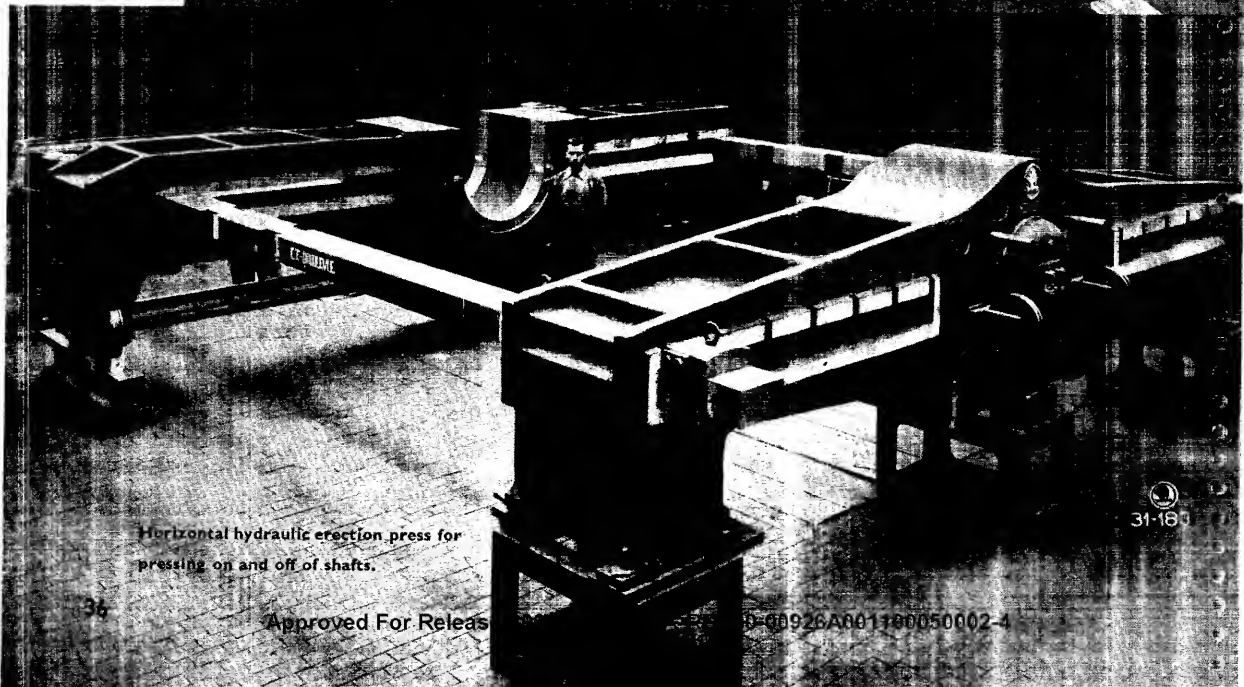
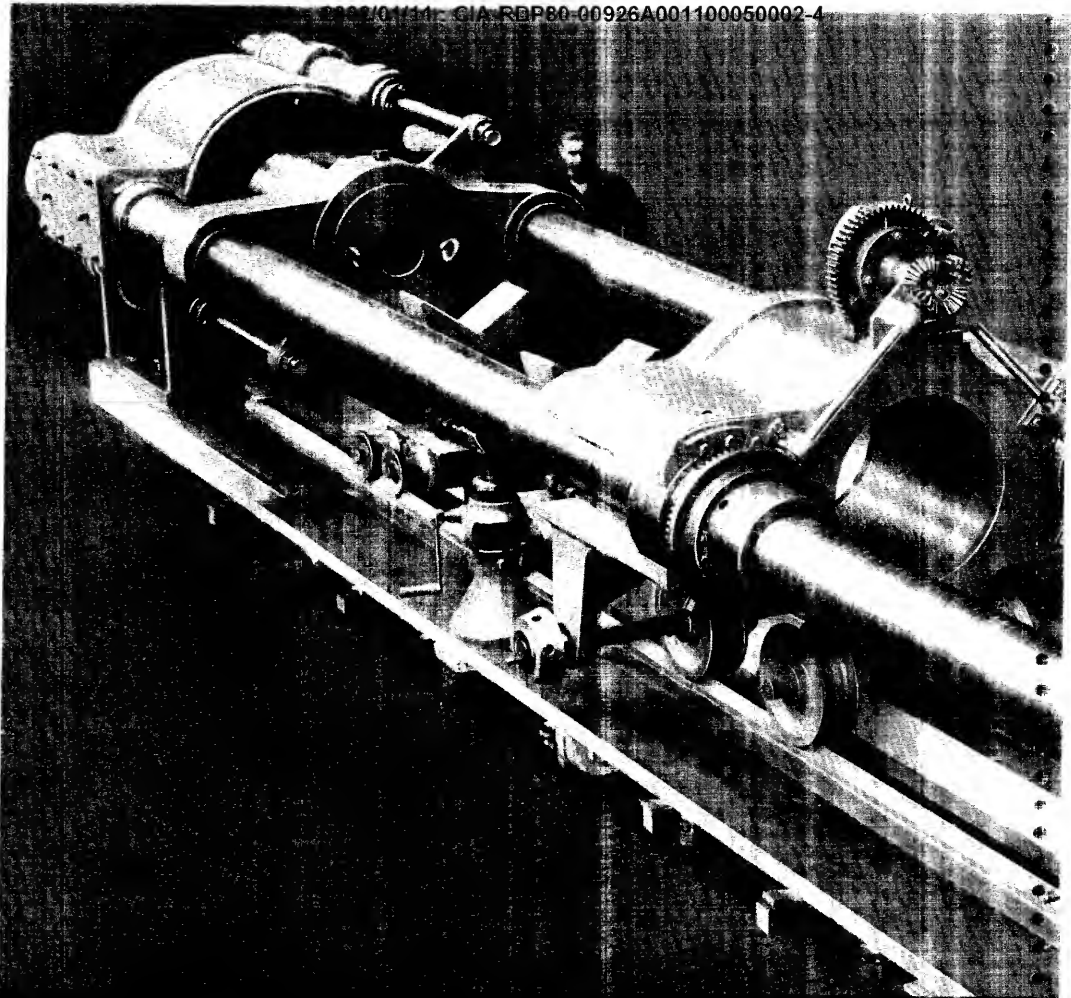
HORIZONTAL HYDRAULIC PRESSES



Horizontal hydraulic drawing press.

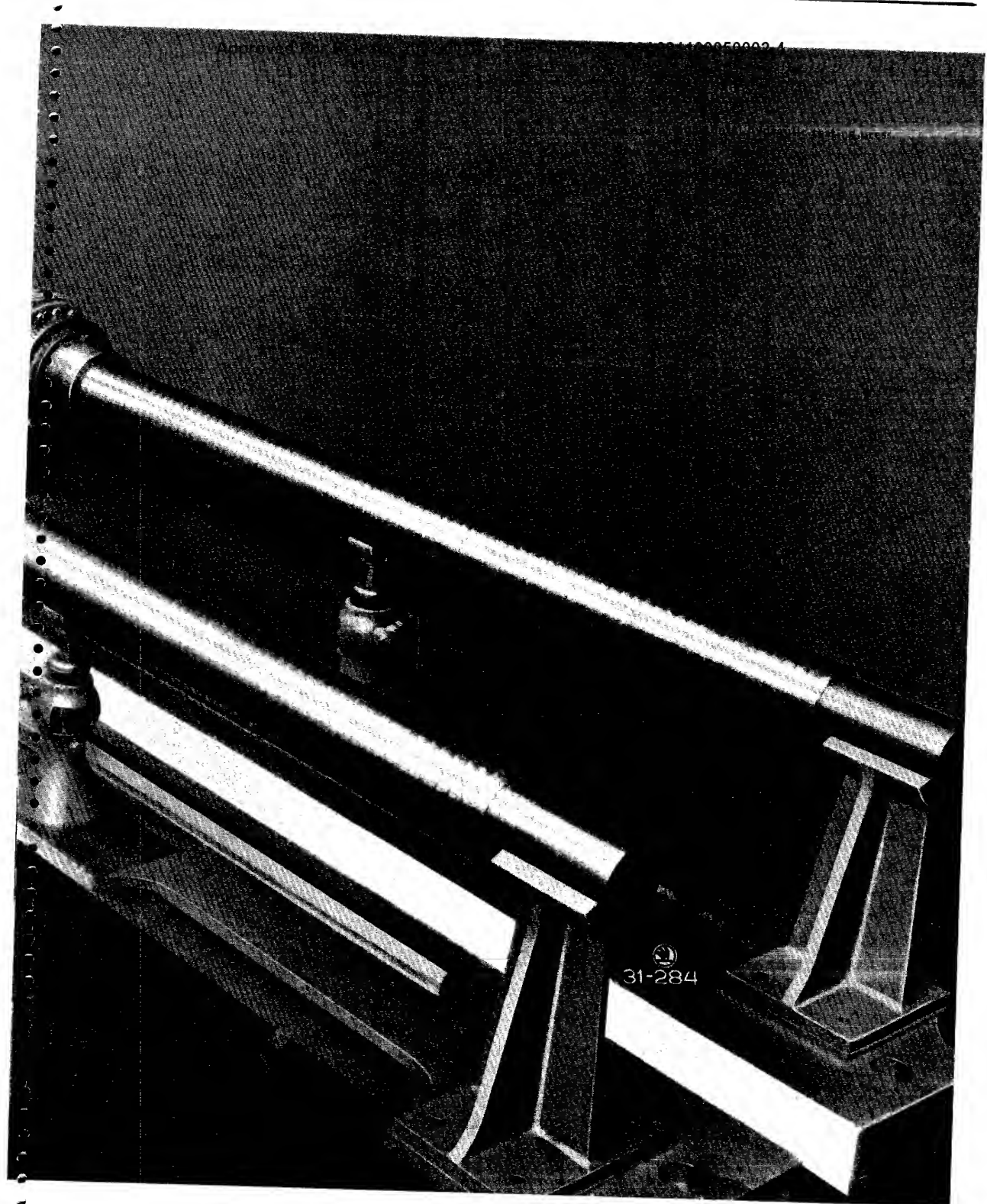


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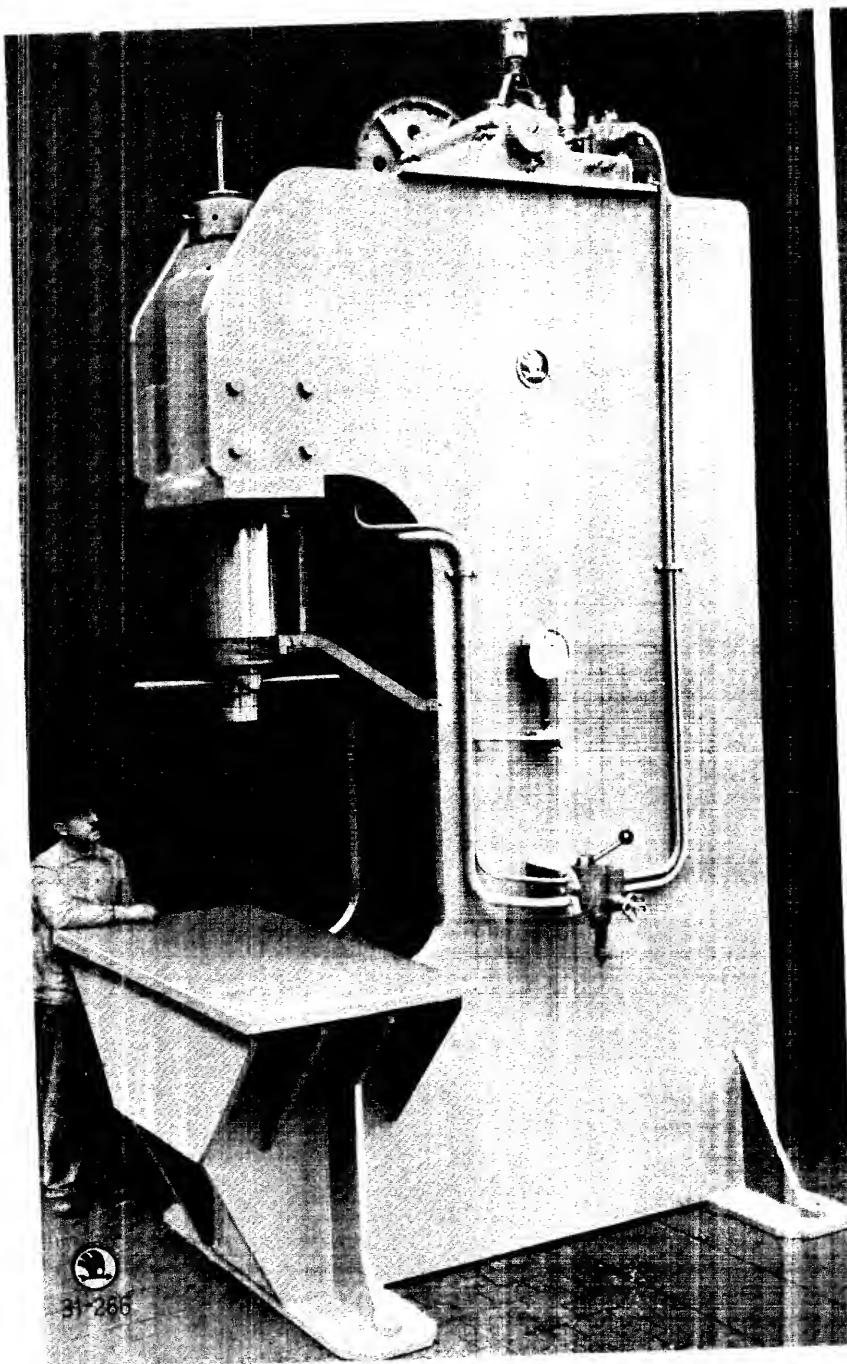


Horizontal hydraulic erection press for pressing on and off of shafts.

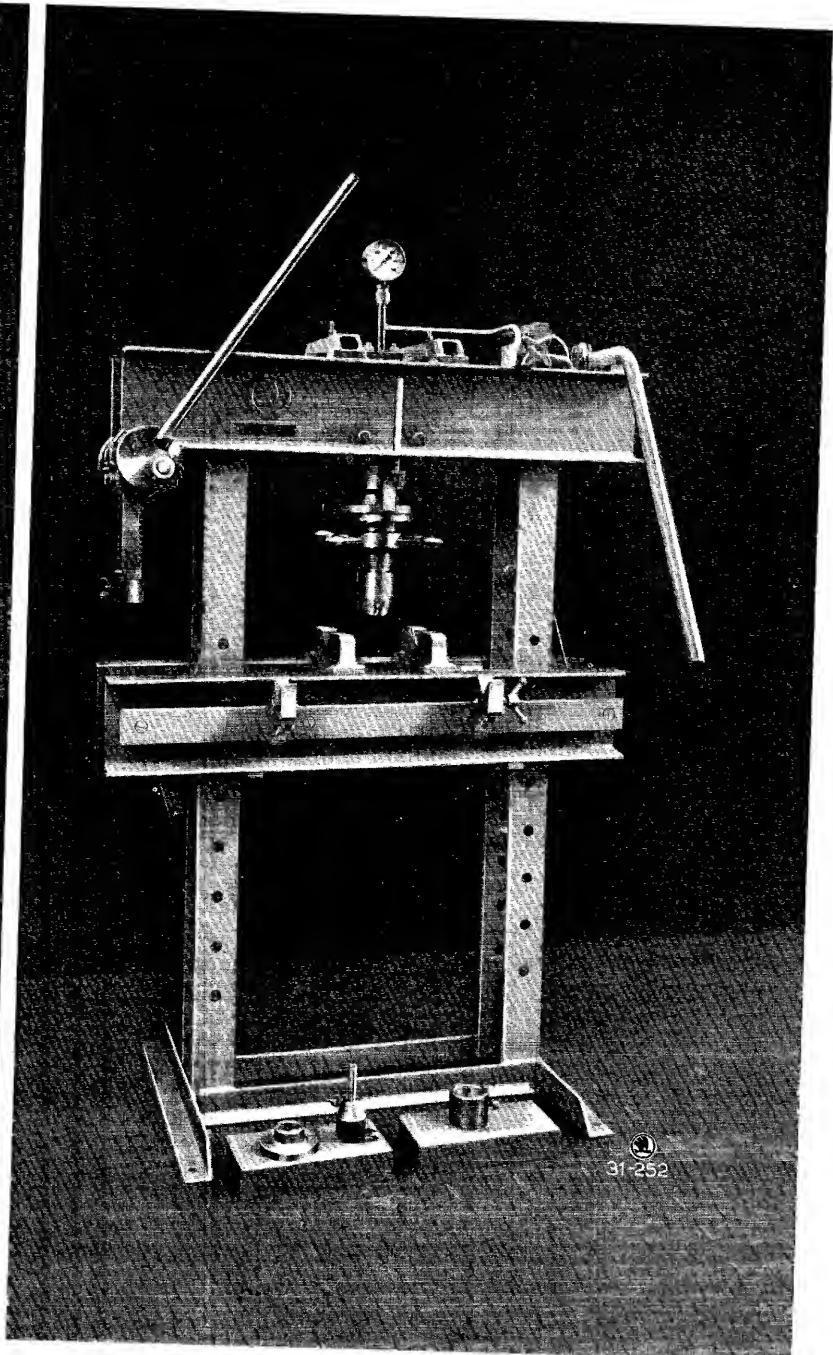
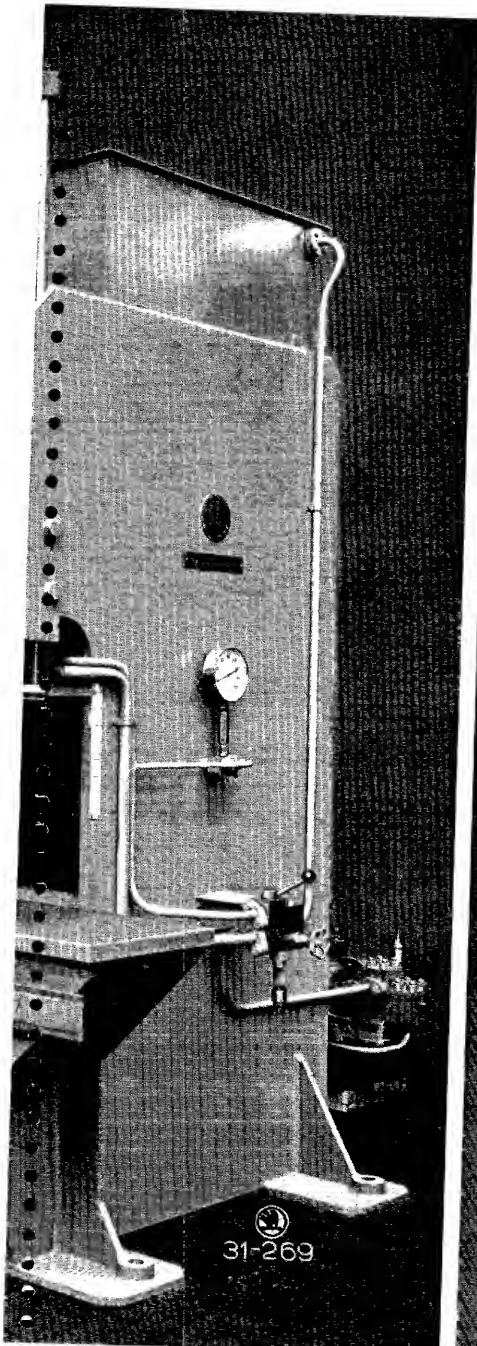
31-180



ASSEMBLING AND STRAIGHTENING PRESSES •

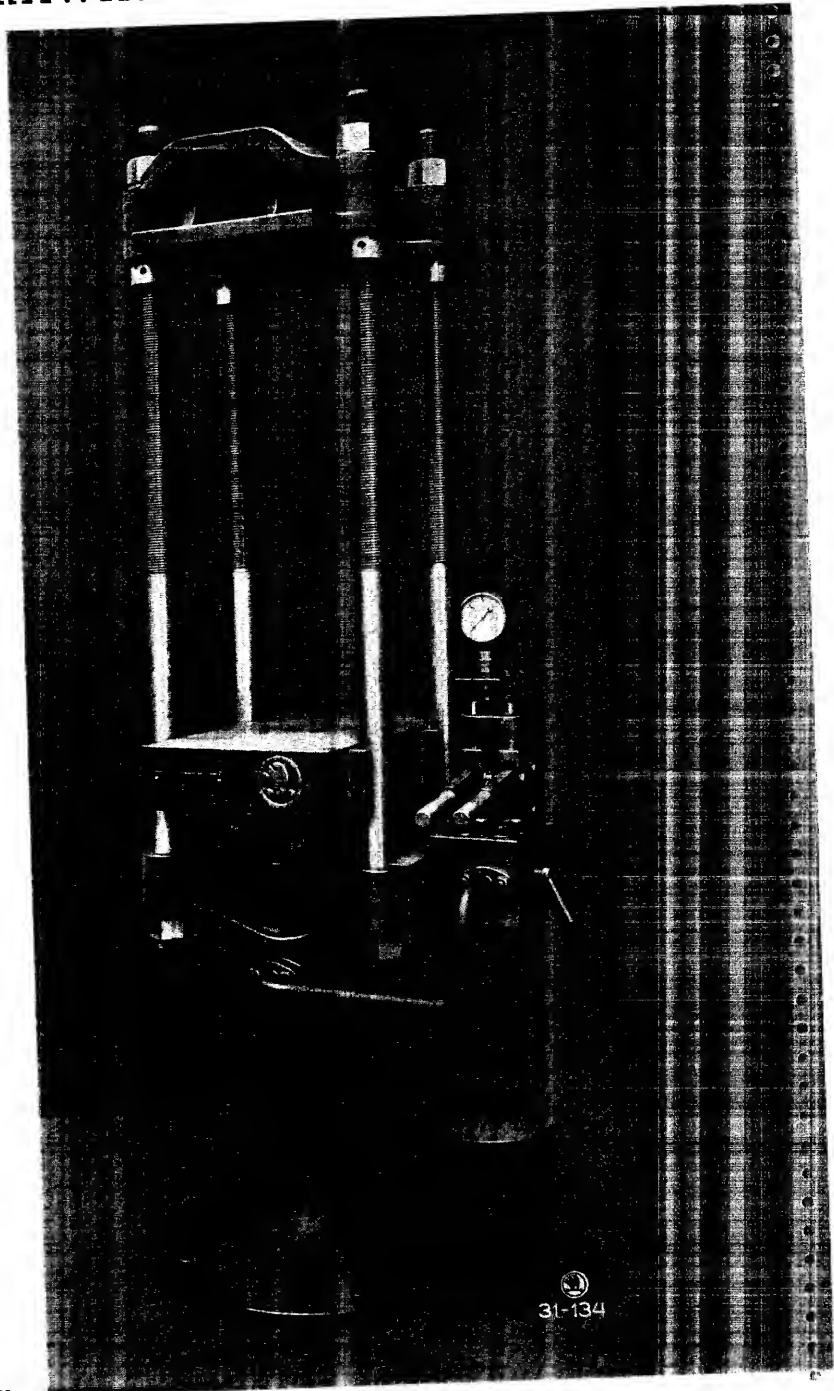


• FOR MECHANICAL WORKSHOPS

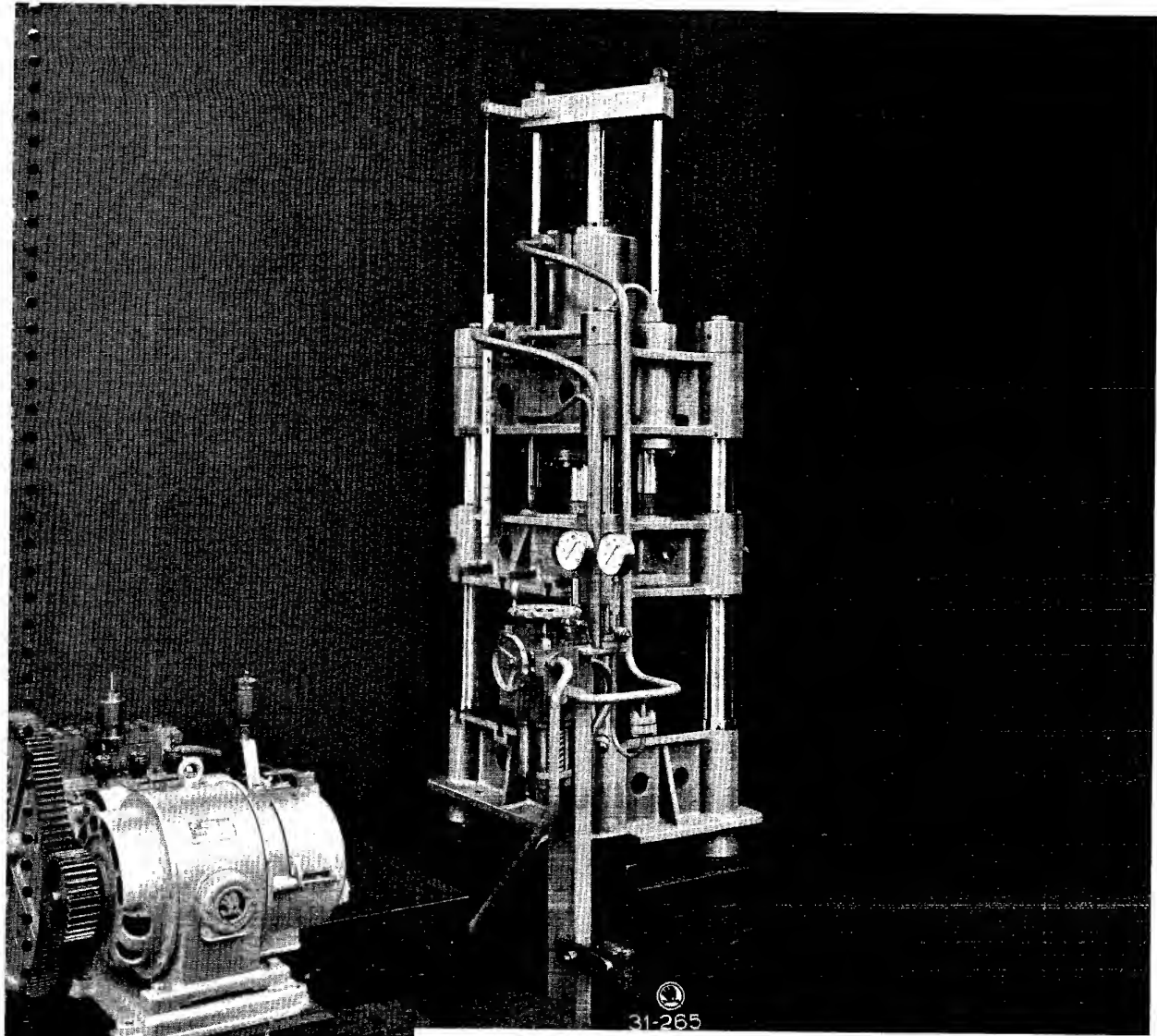


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HYDRAULIC DRAWING PRESSES

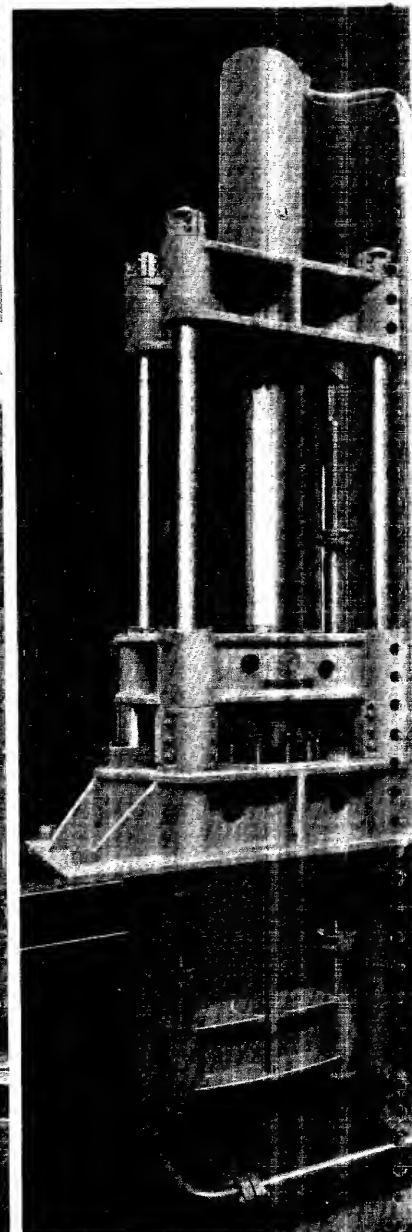
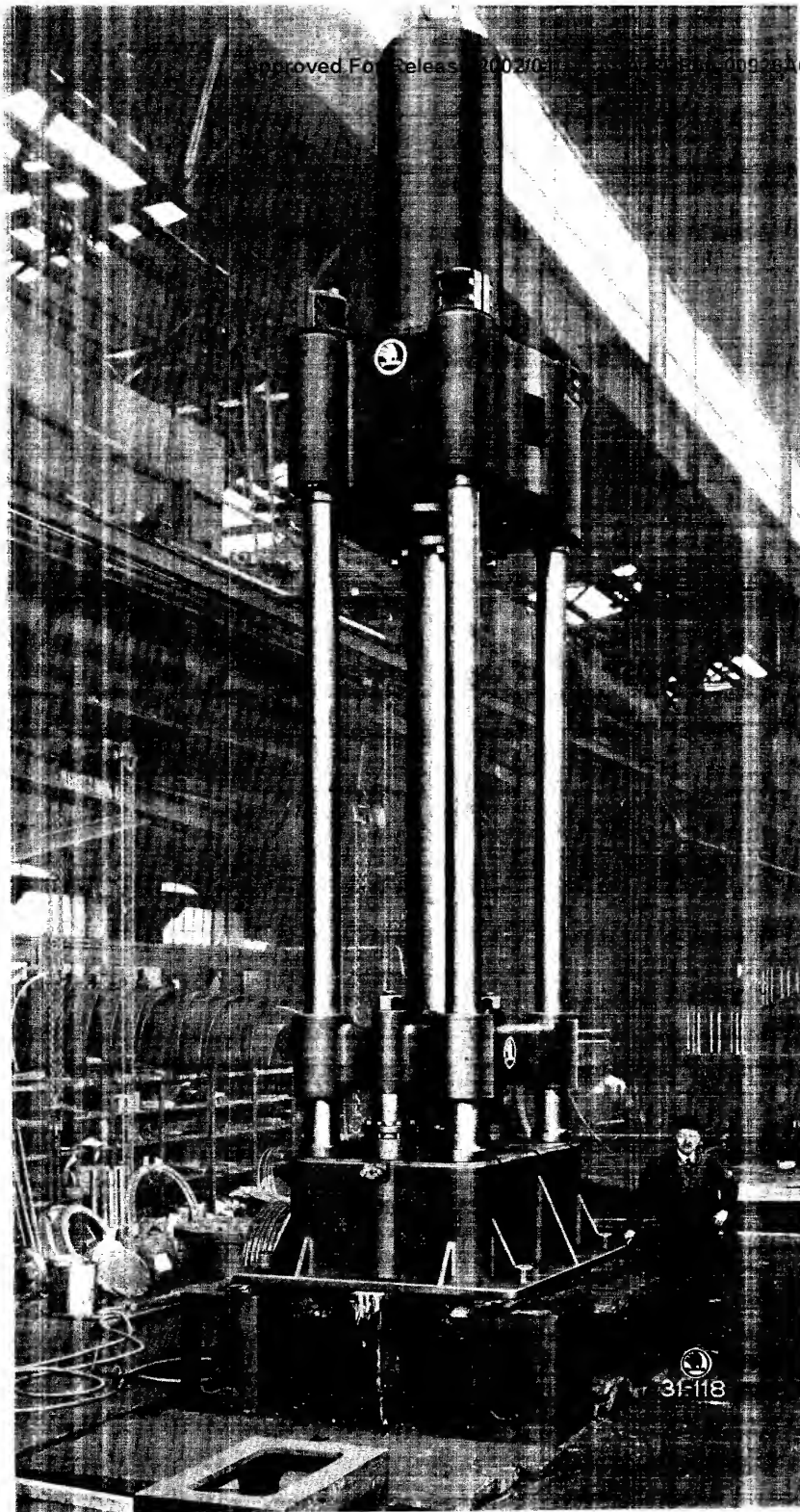


Hydraulic assembling press.



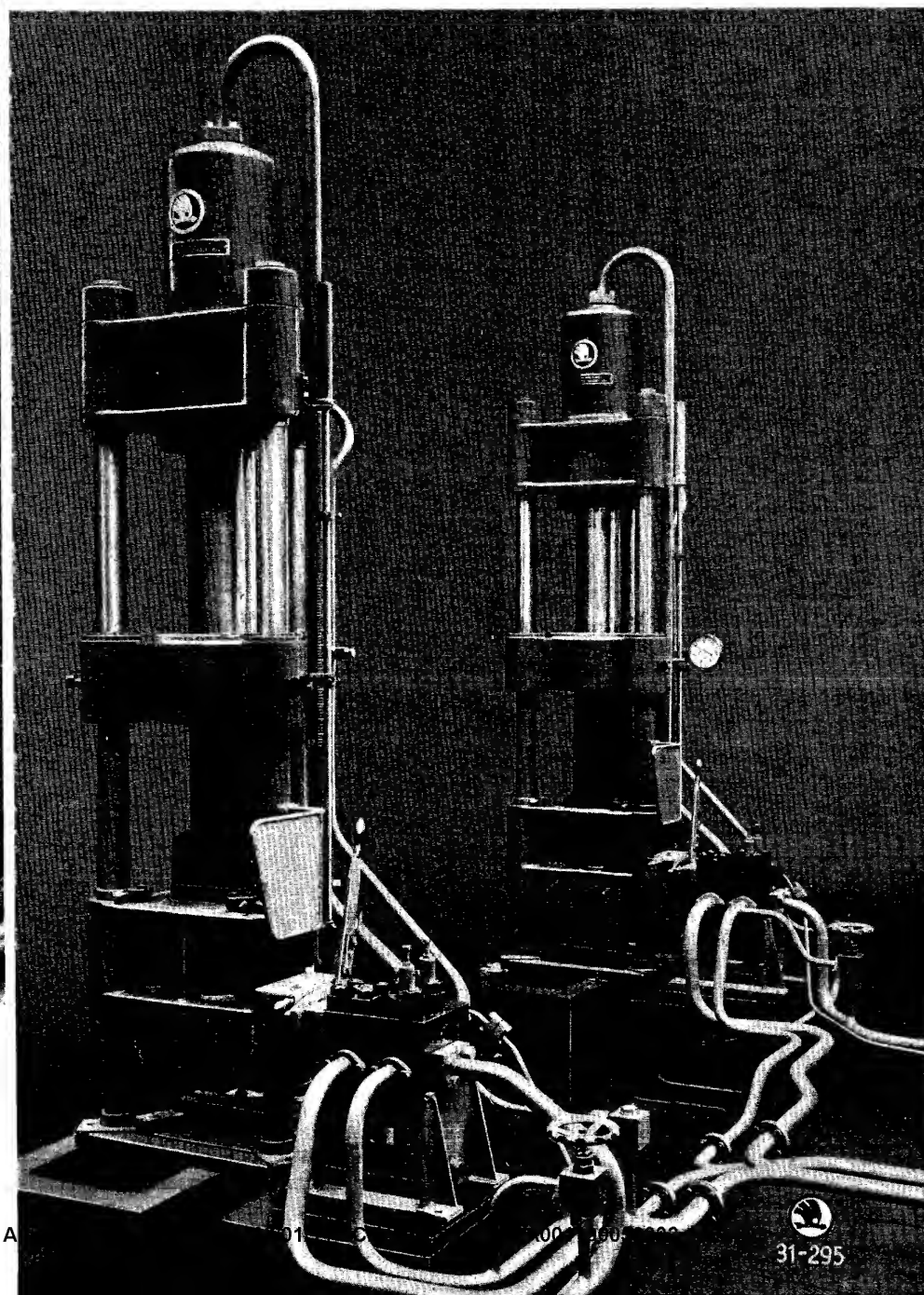
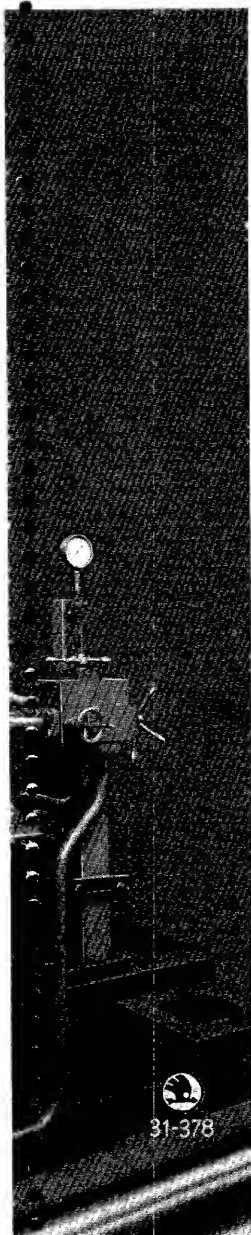
Hydraulic drawing press with welded frame.



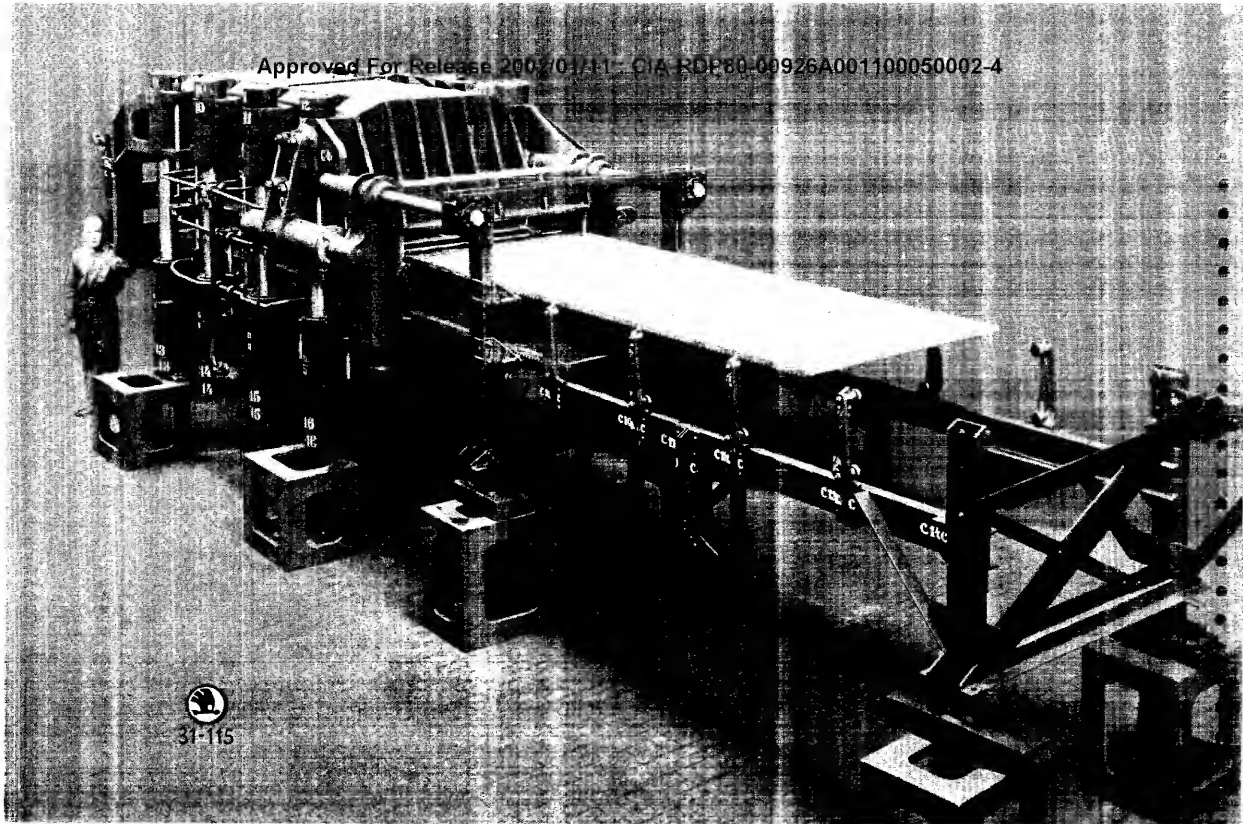


Hydraulic drawing presses for hollow articles.

Hydraulic drawing press for hollow articles
(three-column design).



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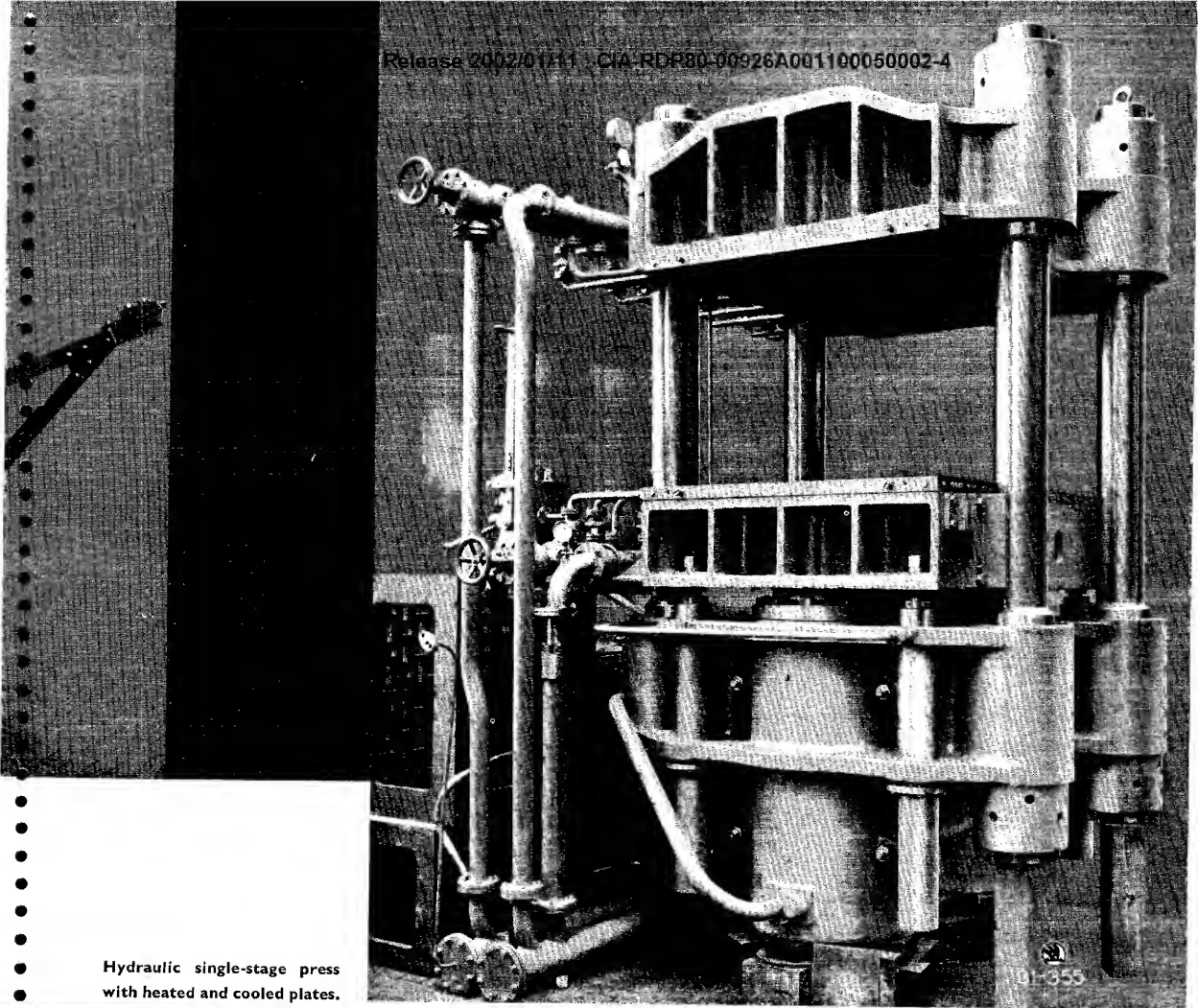


Hydraulic vulcanizing press with stretching equipment for rubber bands.

VULCANIZING PRESSES

Hydraulic vulcanizing press for rubber carpets.

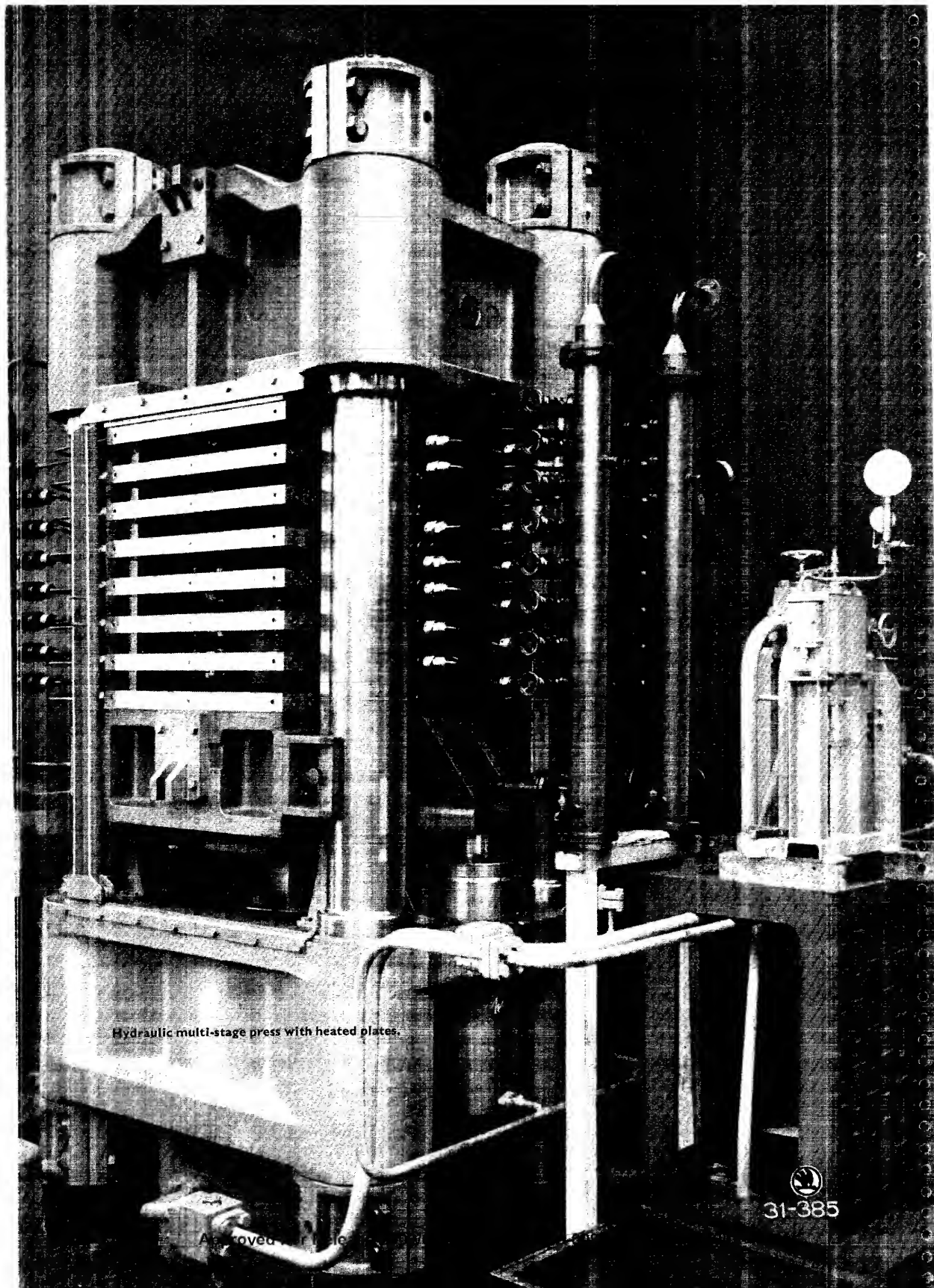




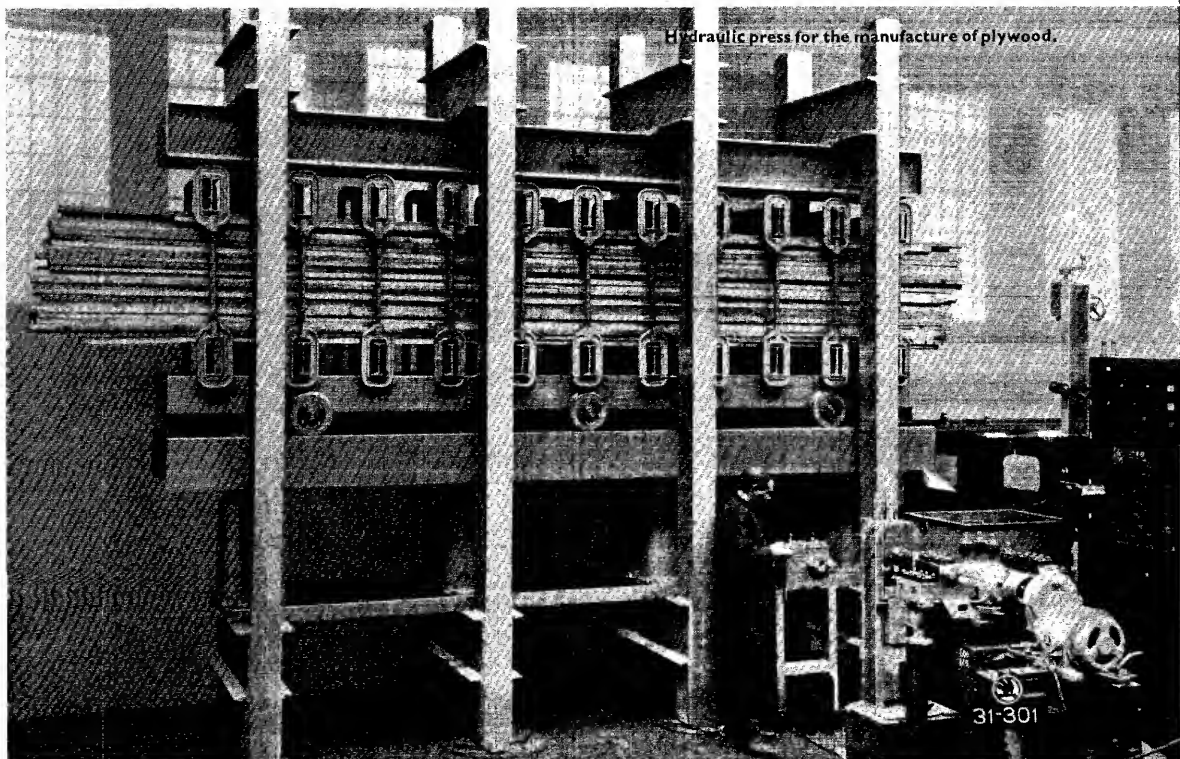
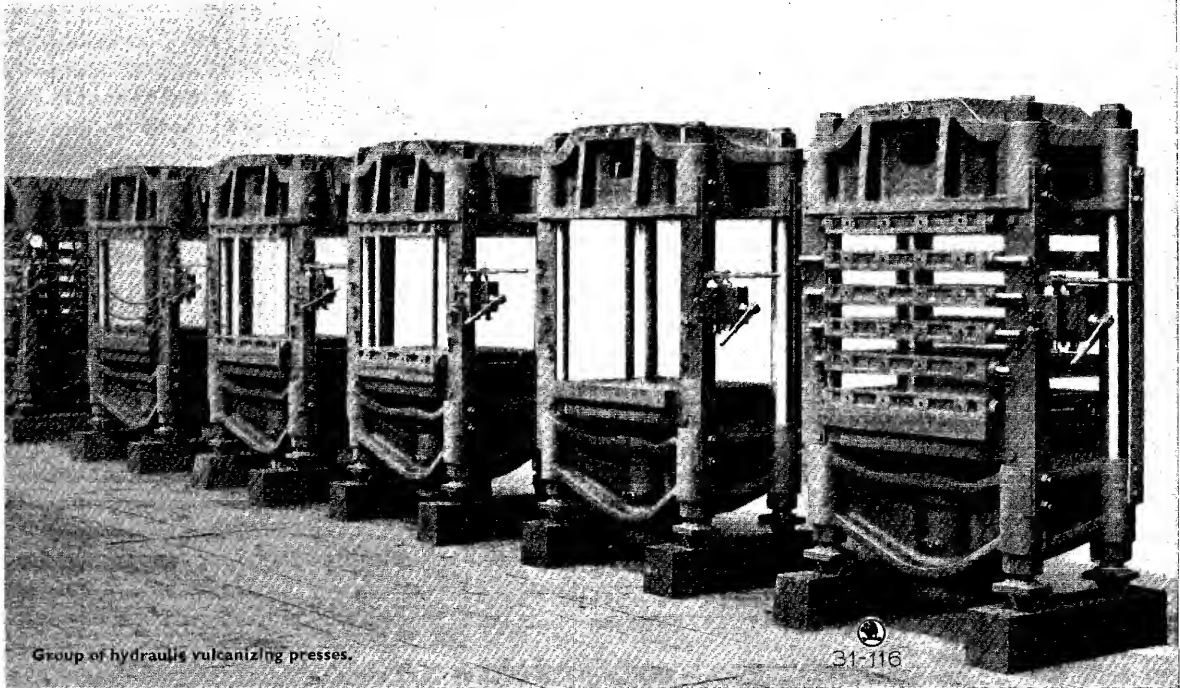
Hydraulic single-stage press with heated and cooled plates.



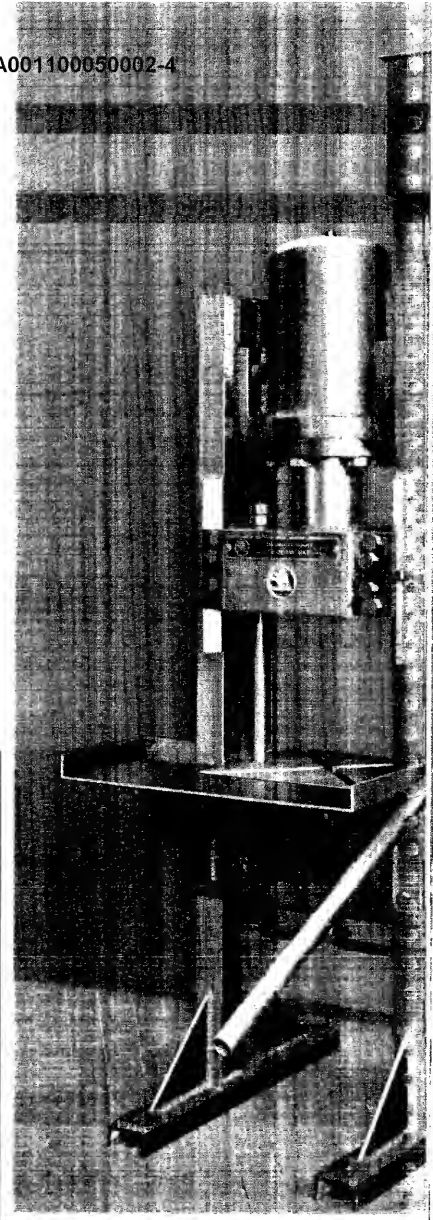
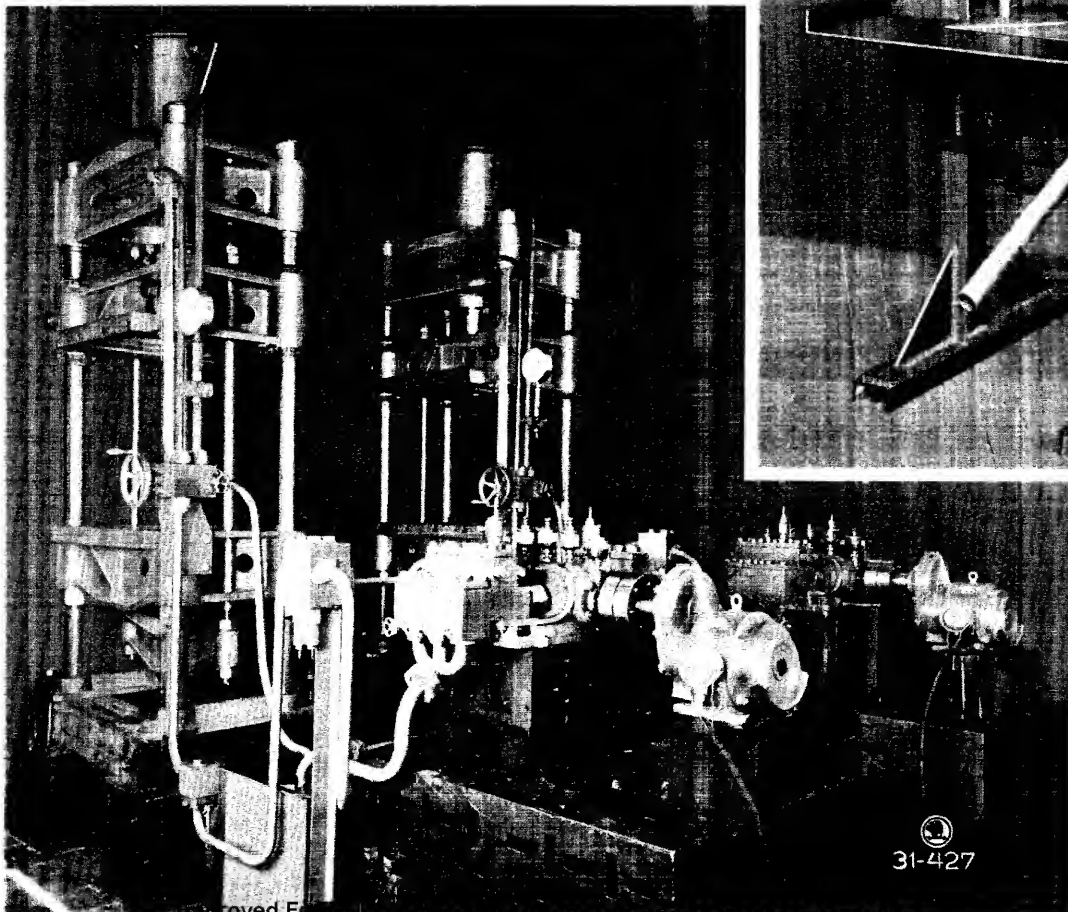
Hydraulic press for vulcan-fibre plates.



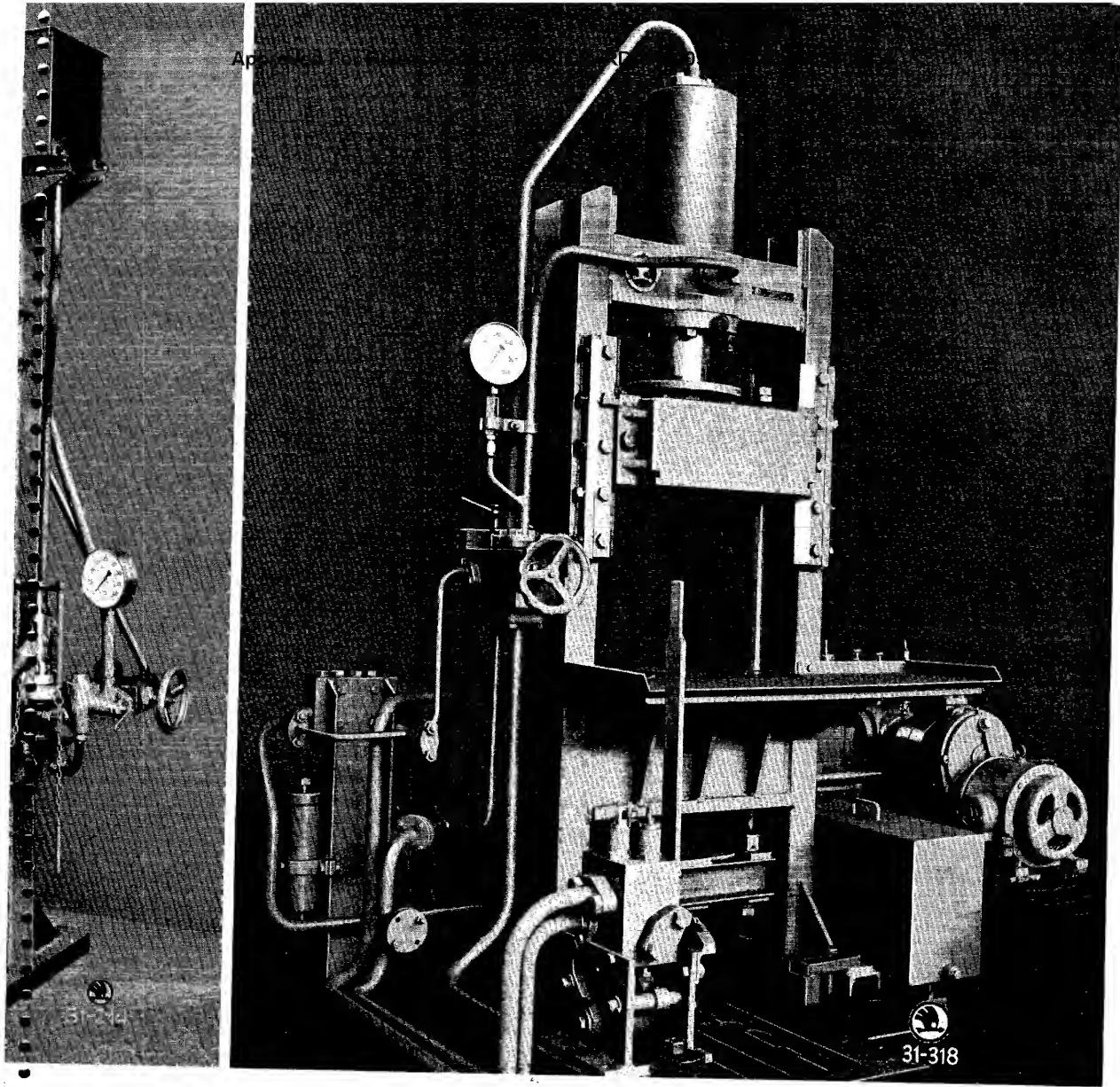
Hydraulic multi-stage press with heated plates.

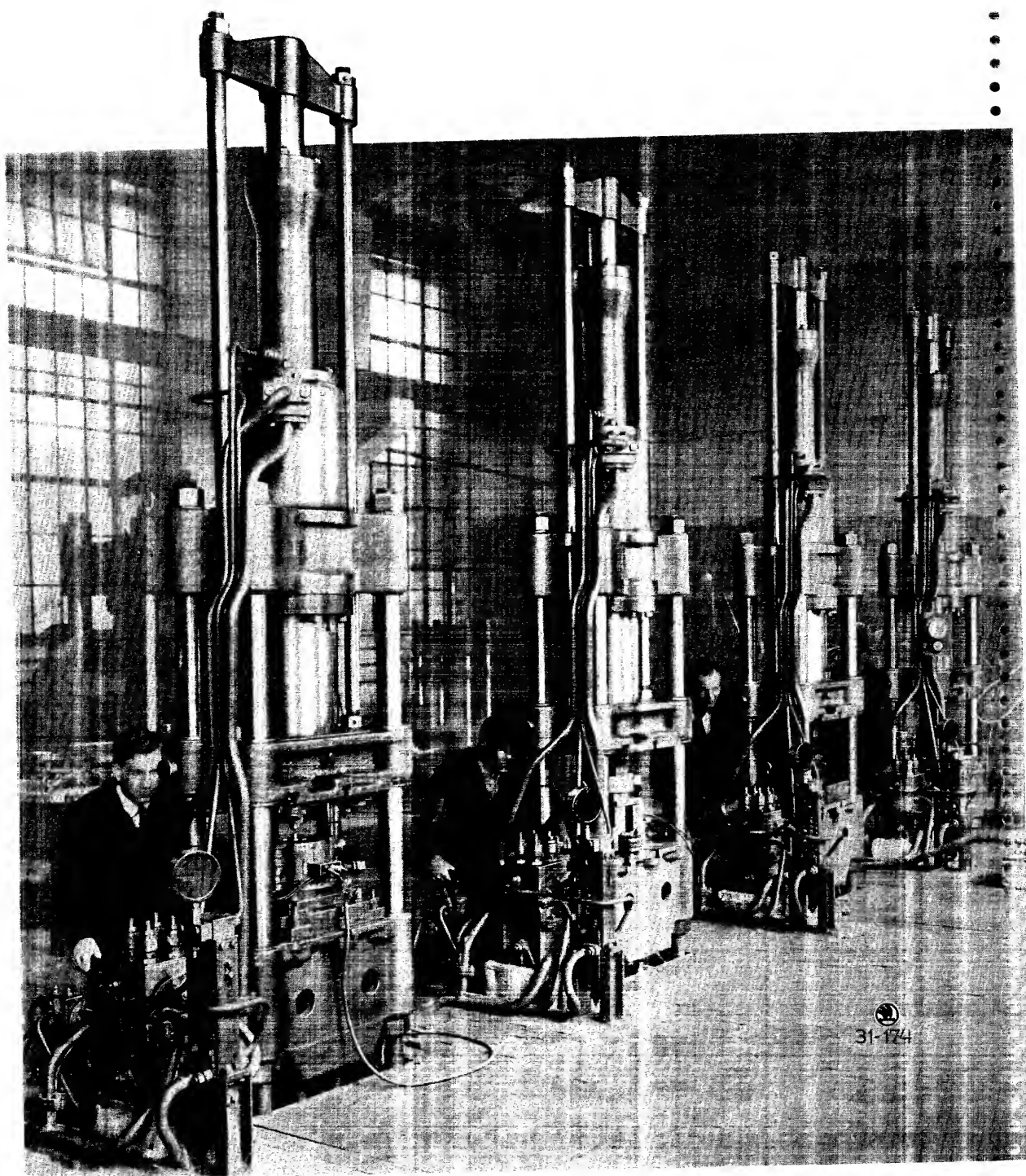


HYDRAULIC BAKELITE PRESSES

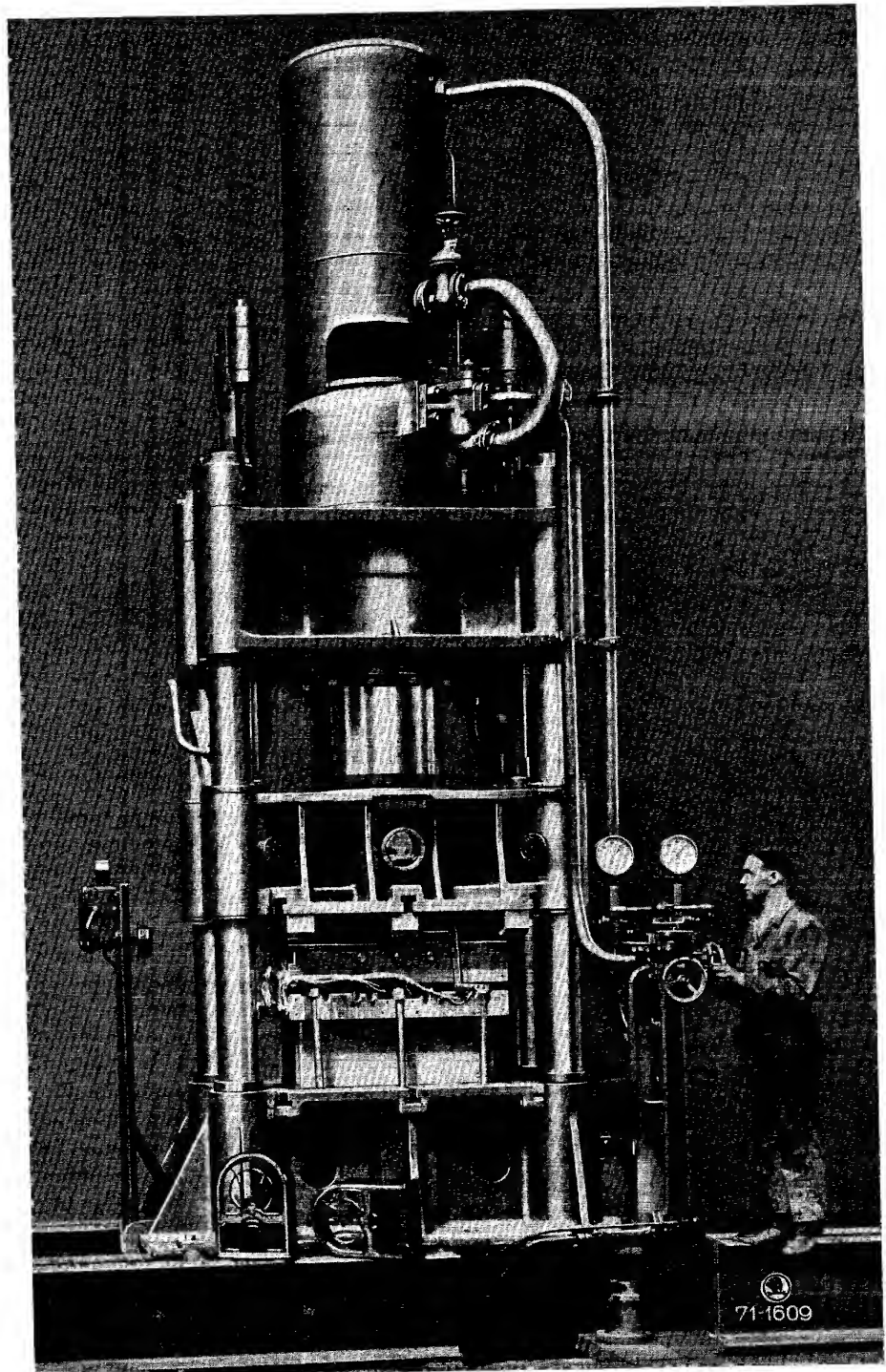


31-427

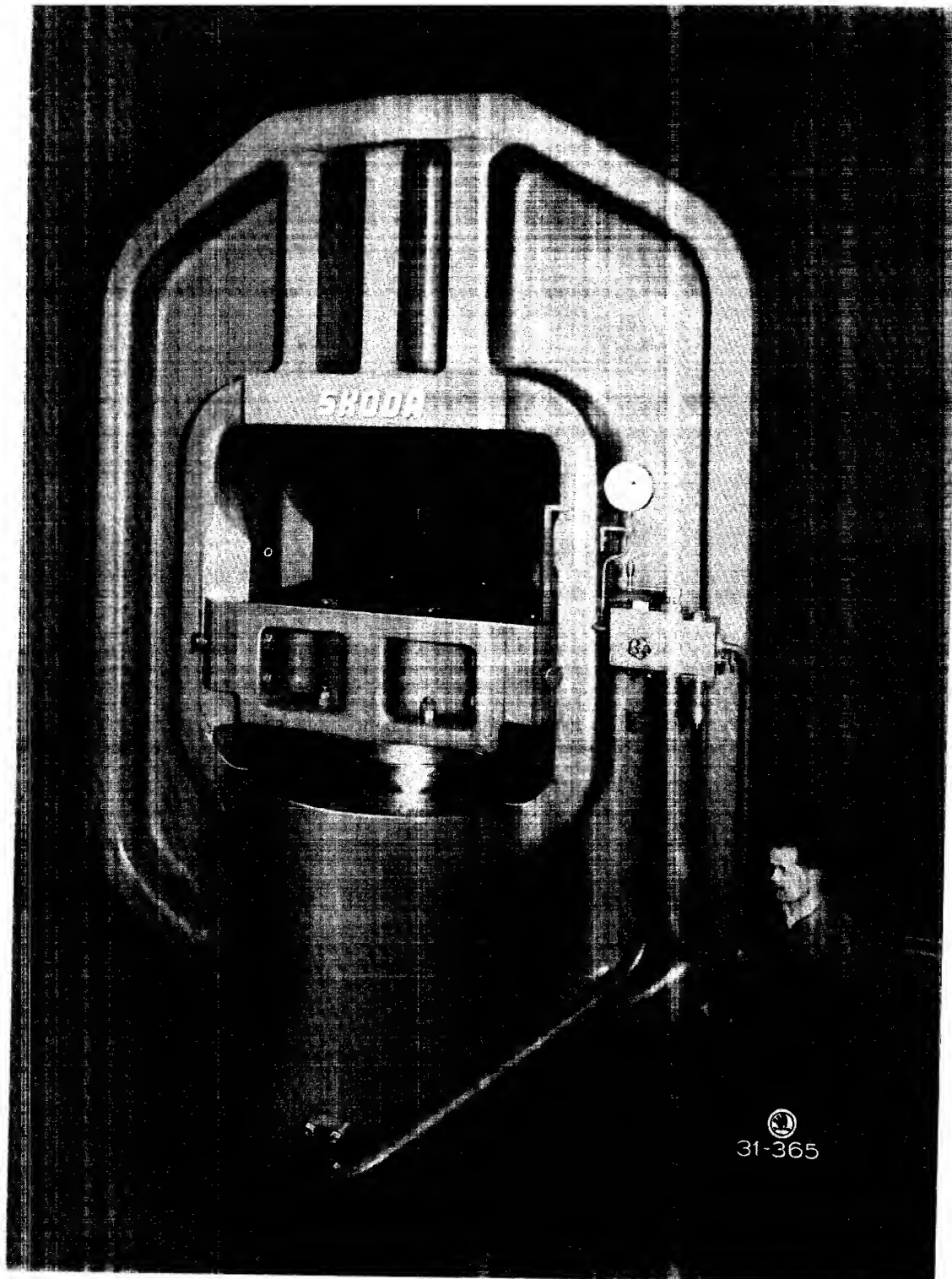




Group of bakelite presses.

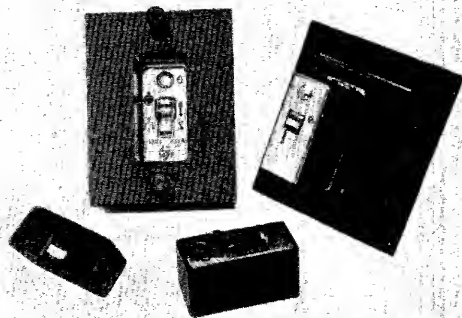
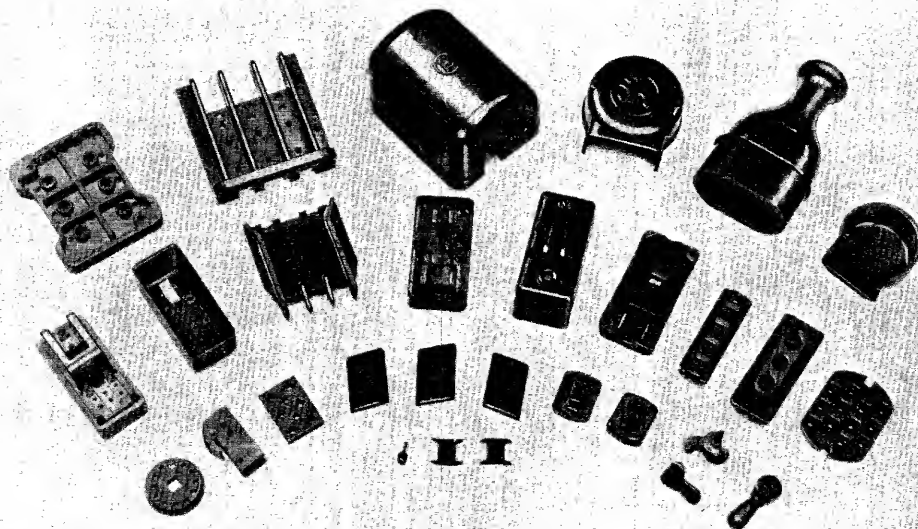


Hydraulic press for wireless casings of bakelite.

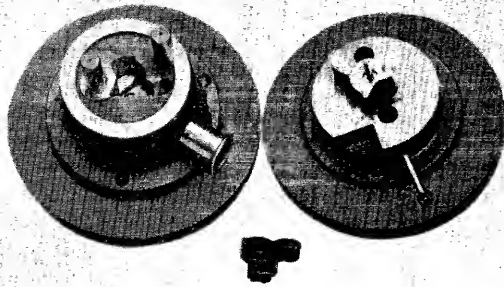


Hydraulic stamping press for the manufacture of press moulds and press tools for bakelite presses. Pressure 5000 t.

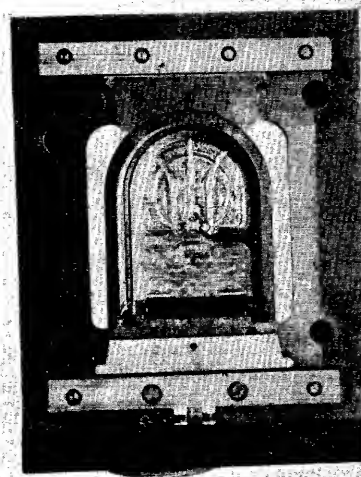
PRODUCTS OF BAKELITE



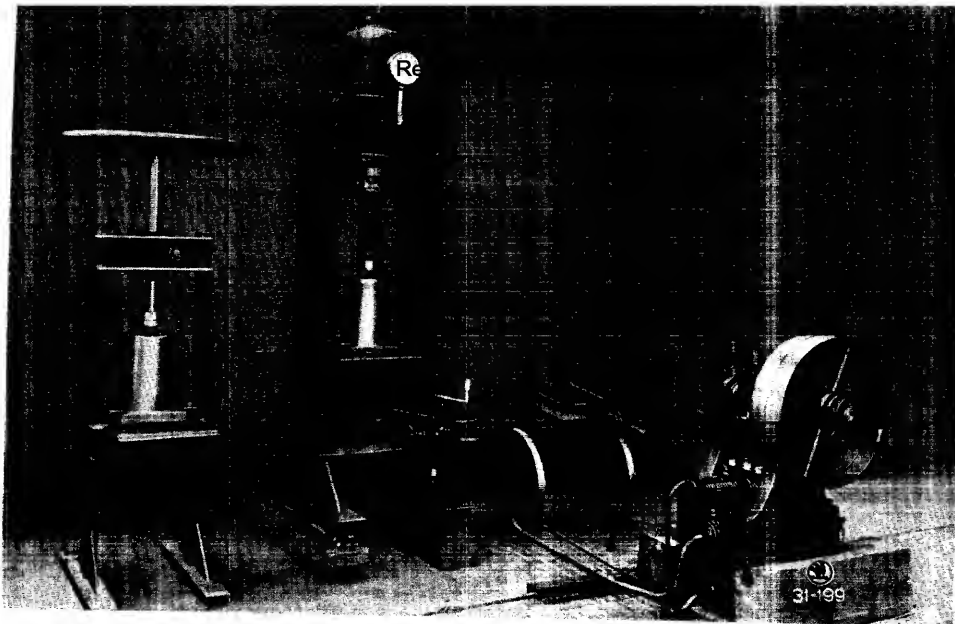
Pressing mould for electric switch boxes.



Pressing moulds and product.



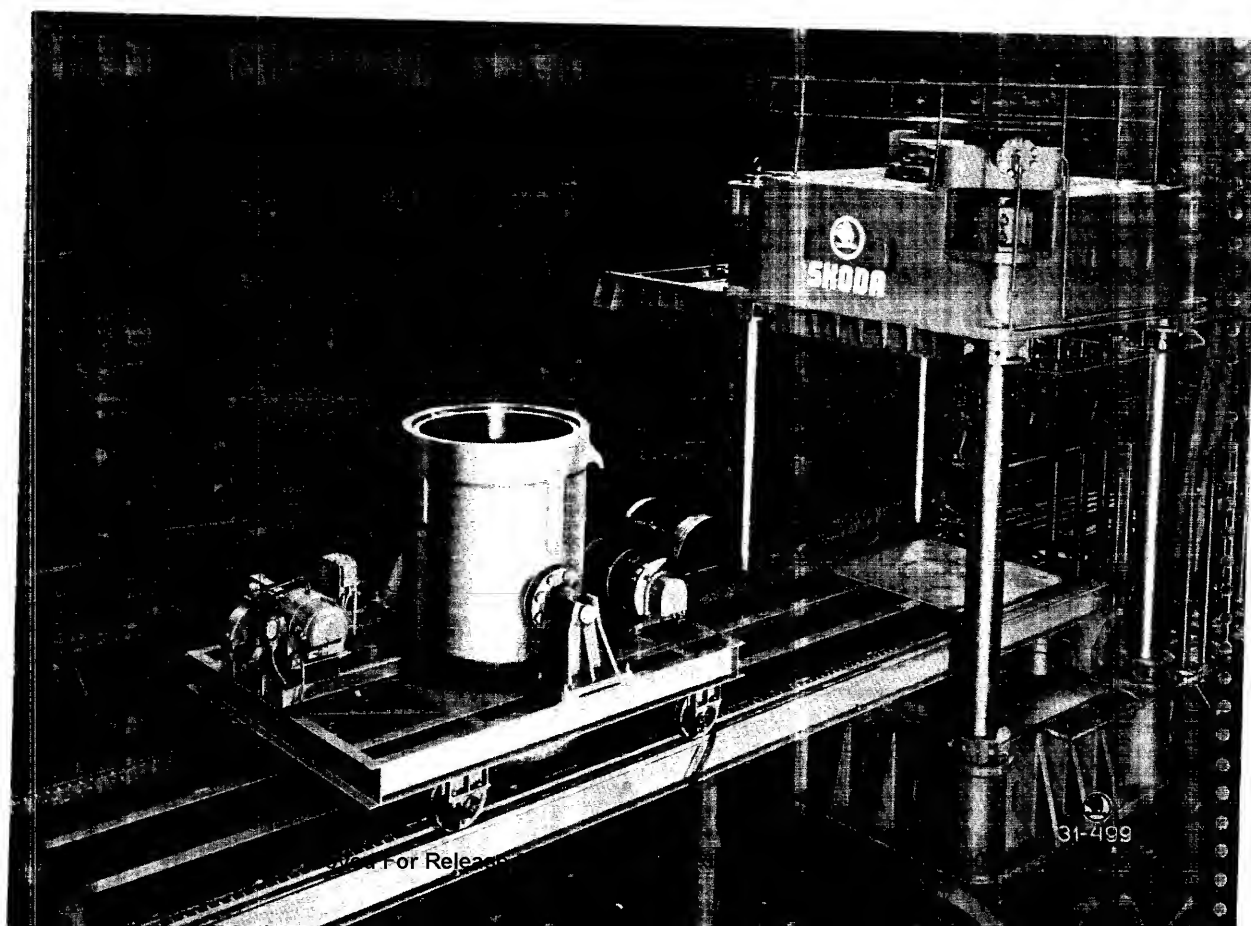
Pressing mould.



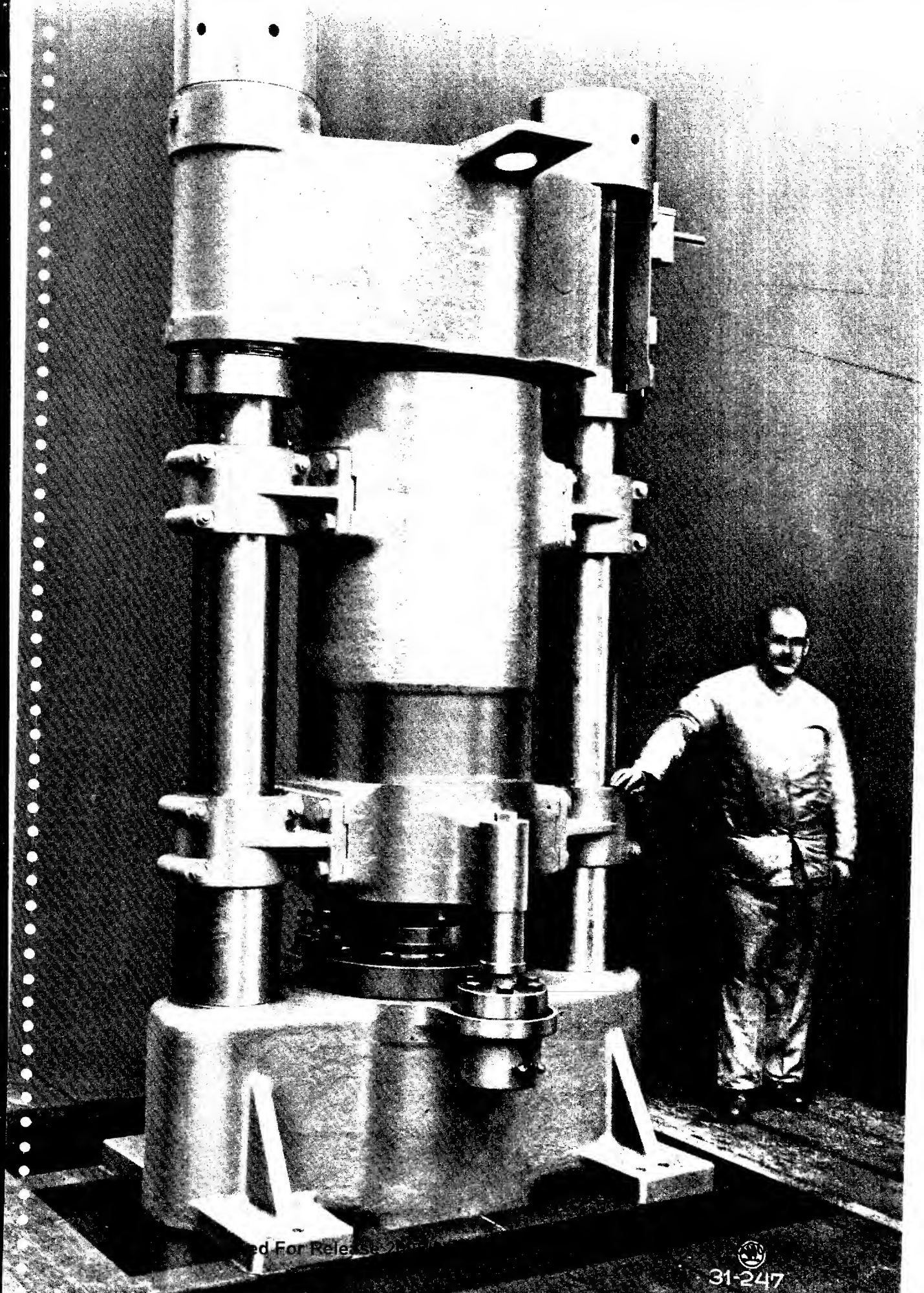
-4

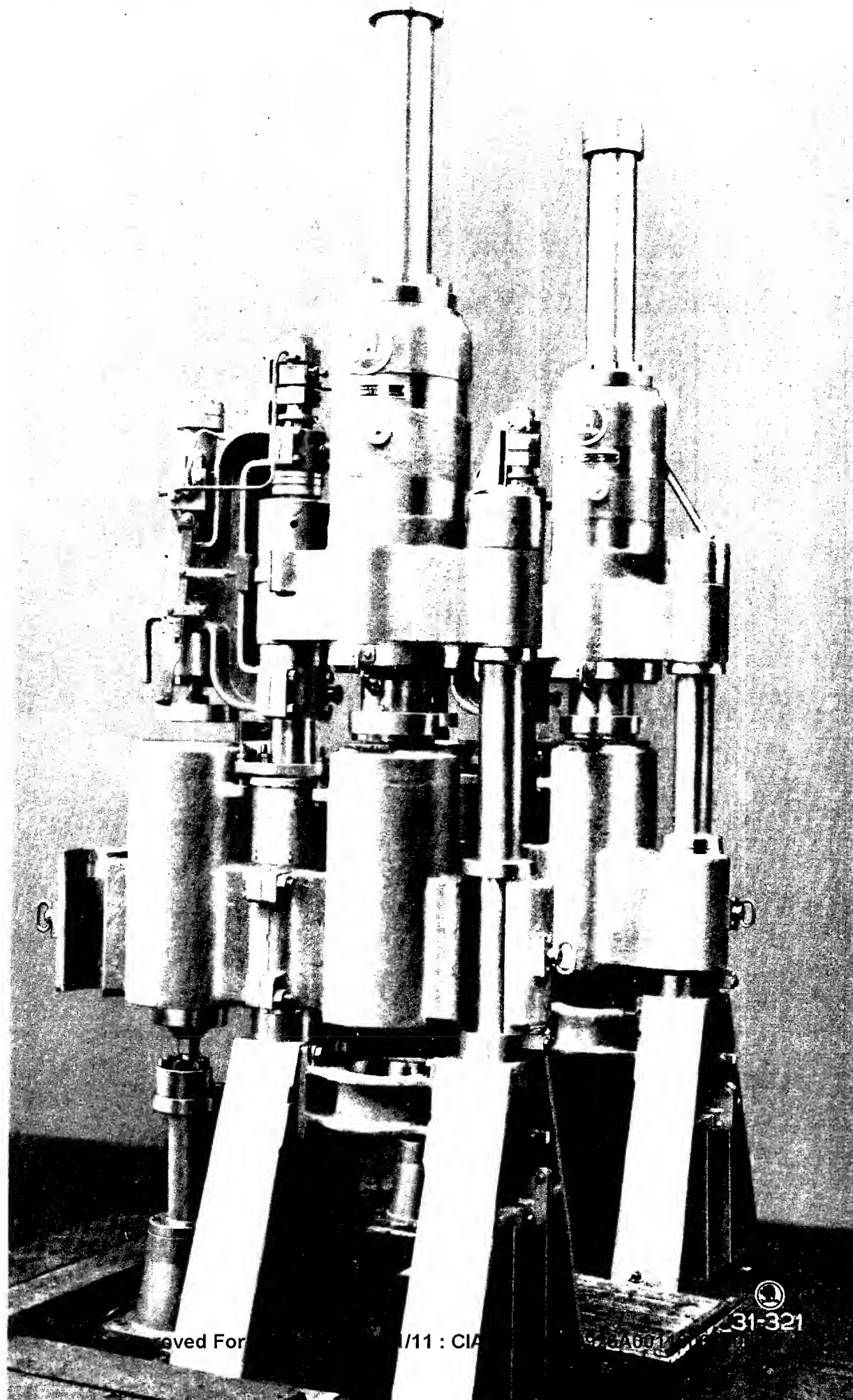
Hydraulic graphite press
mines.

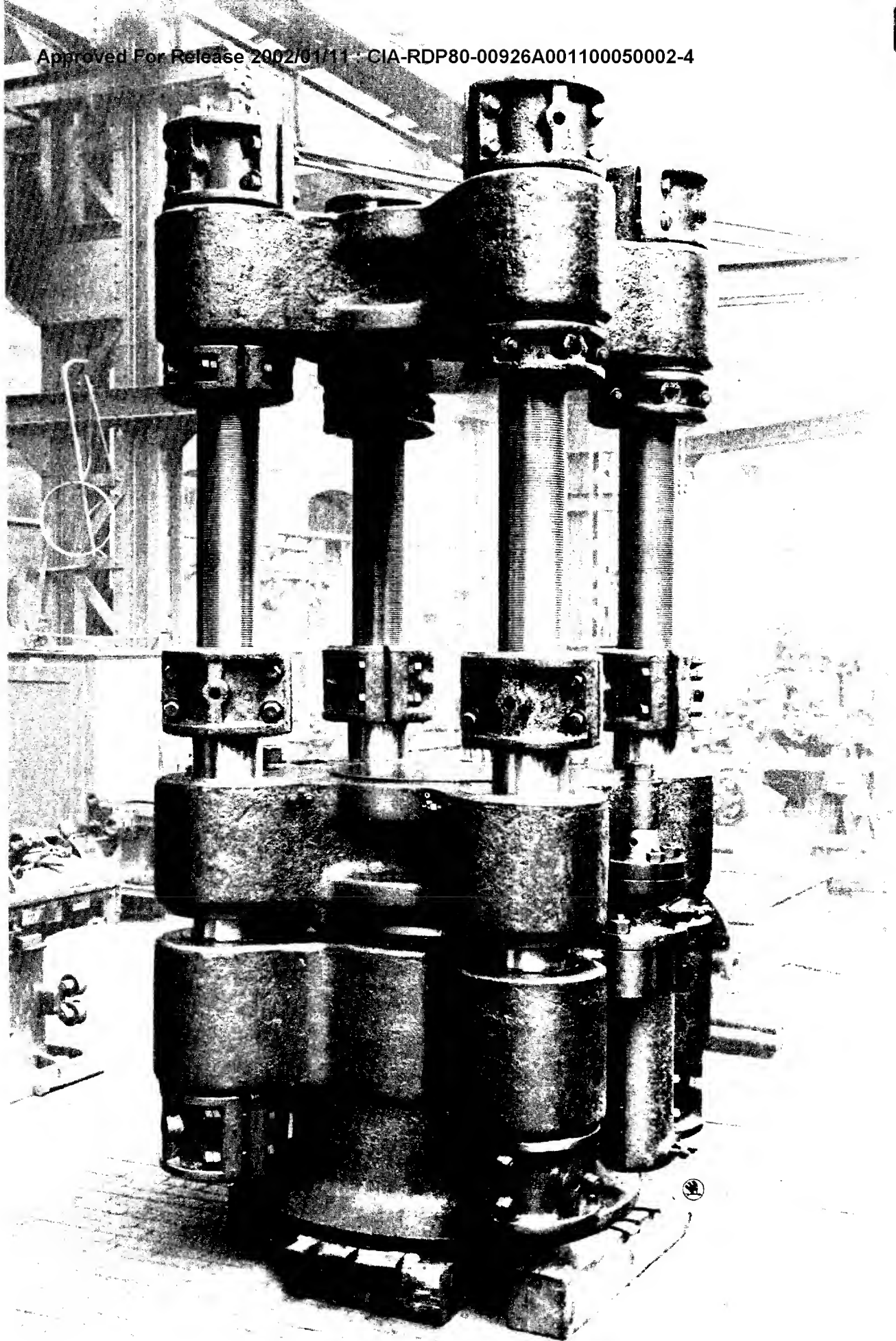
HYDRAULIC PRESSES FOR PLASTIC AND LOOSE MATERIALS



31-499

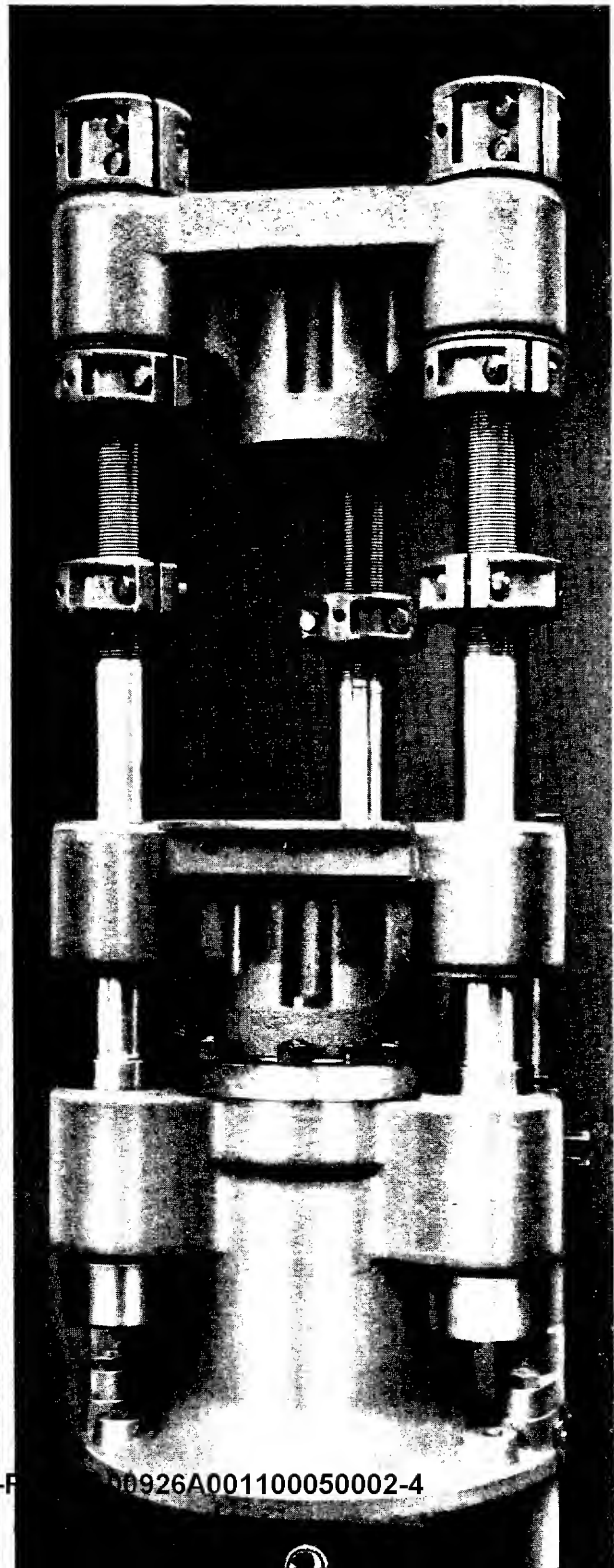
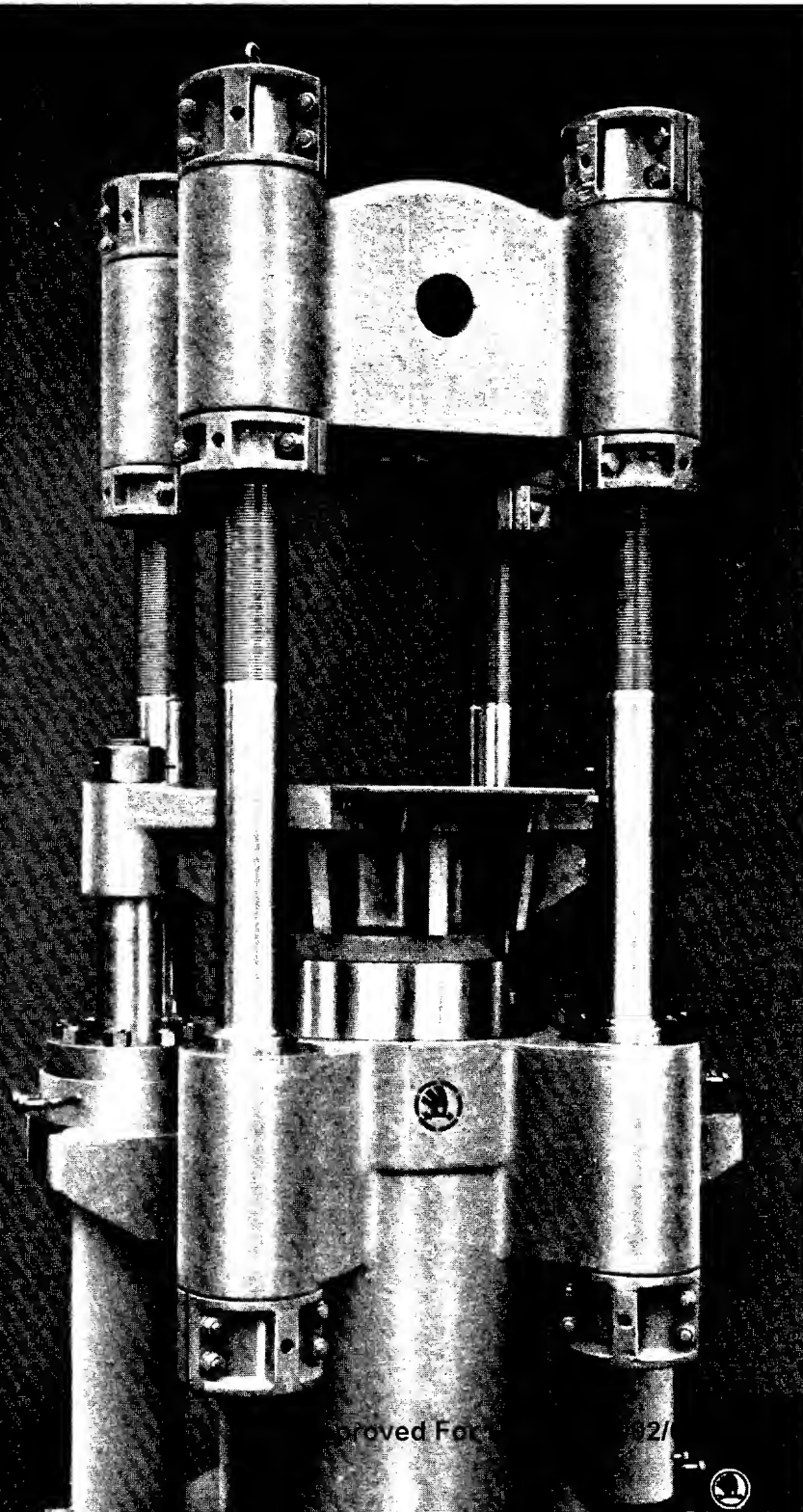




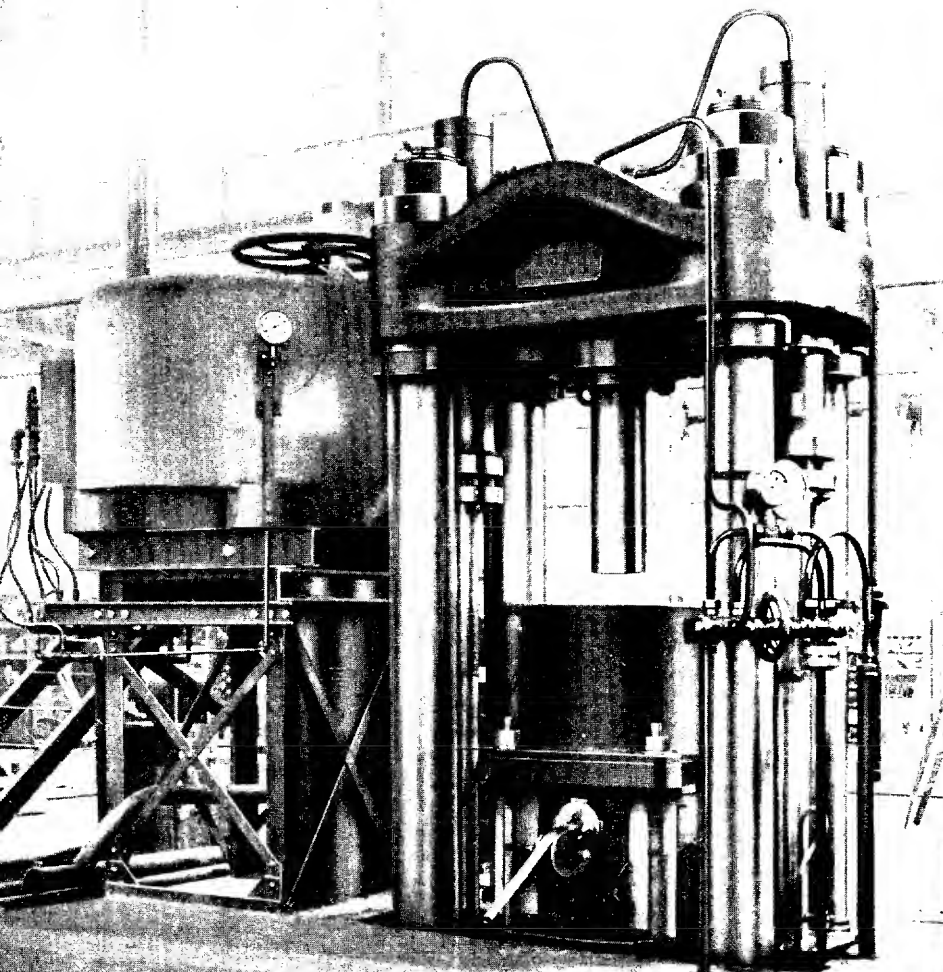
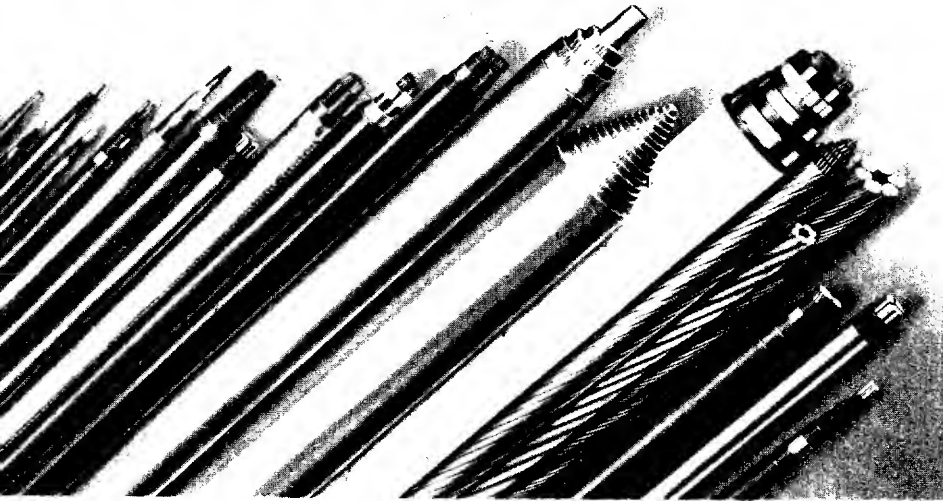


500 t - hydraulic press for loose materials.

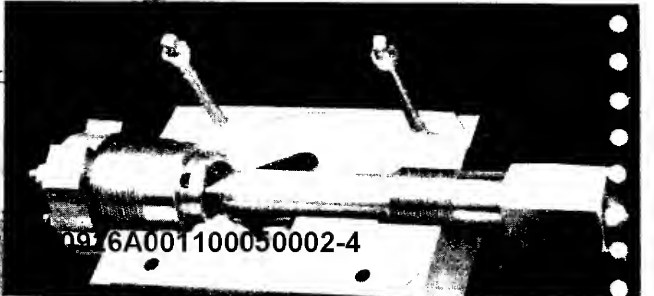
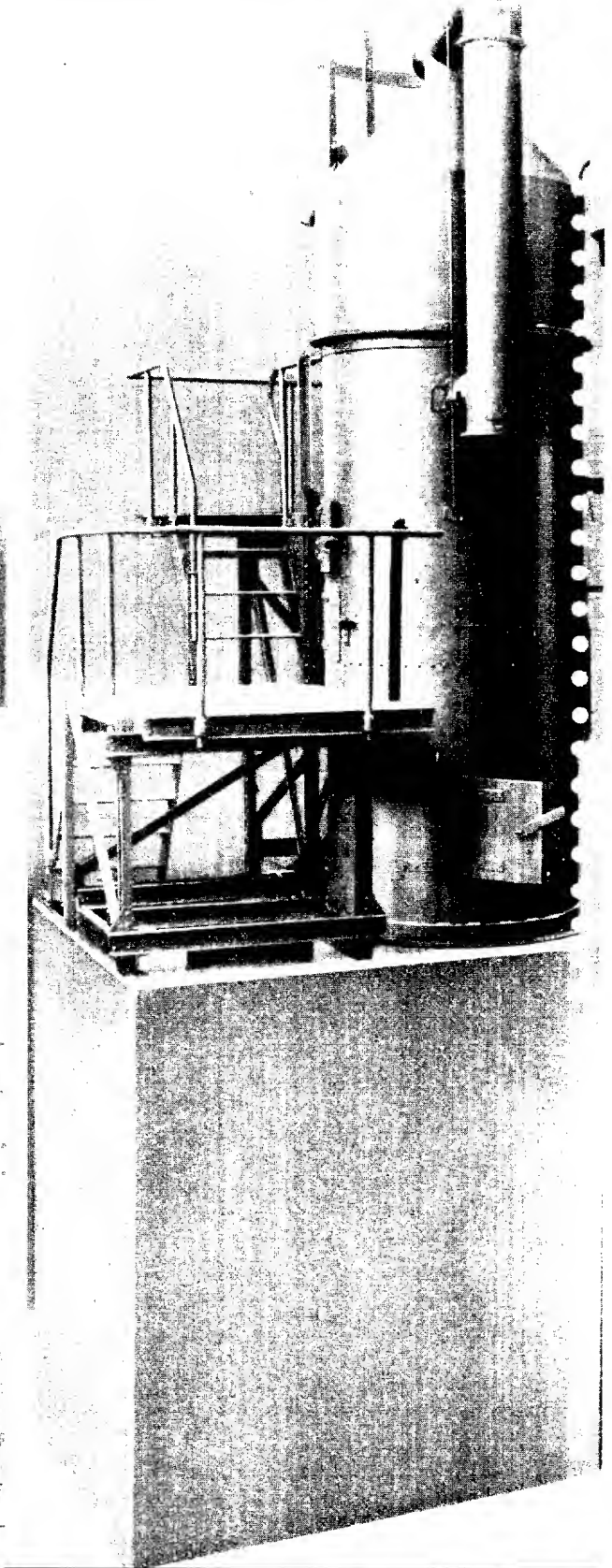
250 - hydraulic press for loose materials.

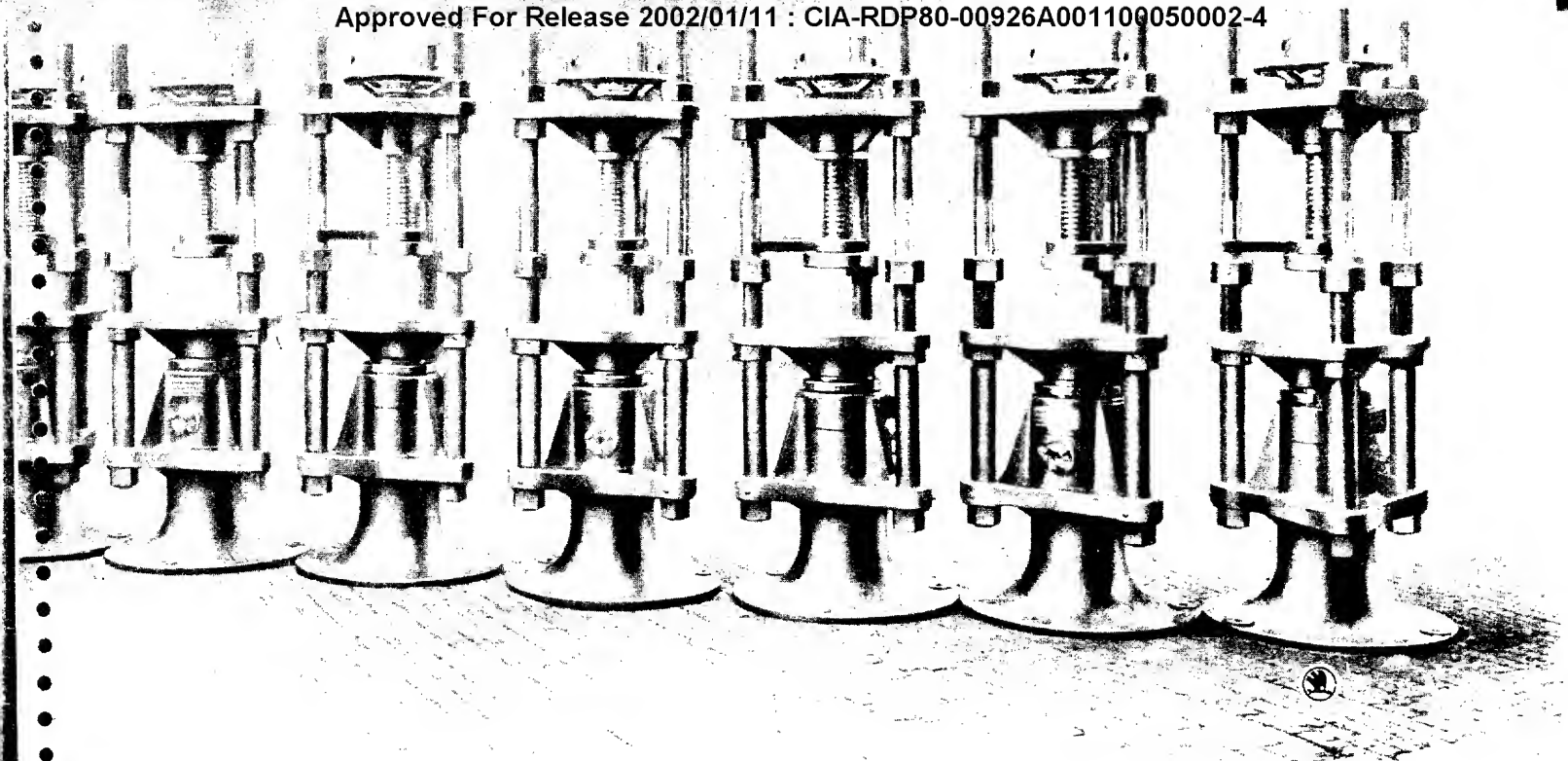


CABLE LEAD SHEATHING PRESSES



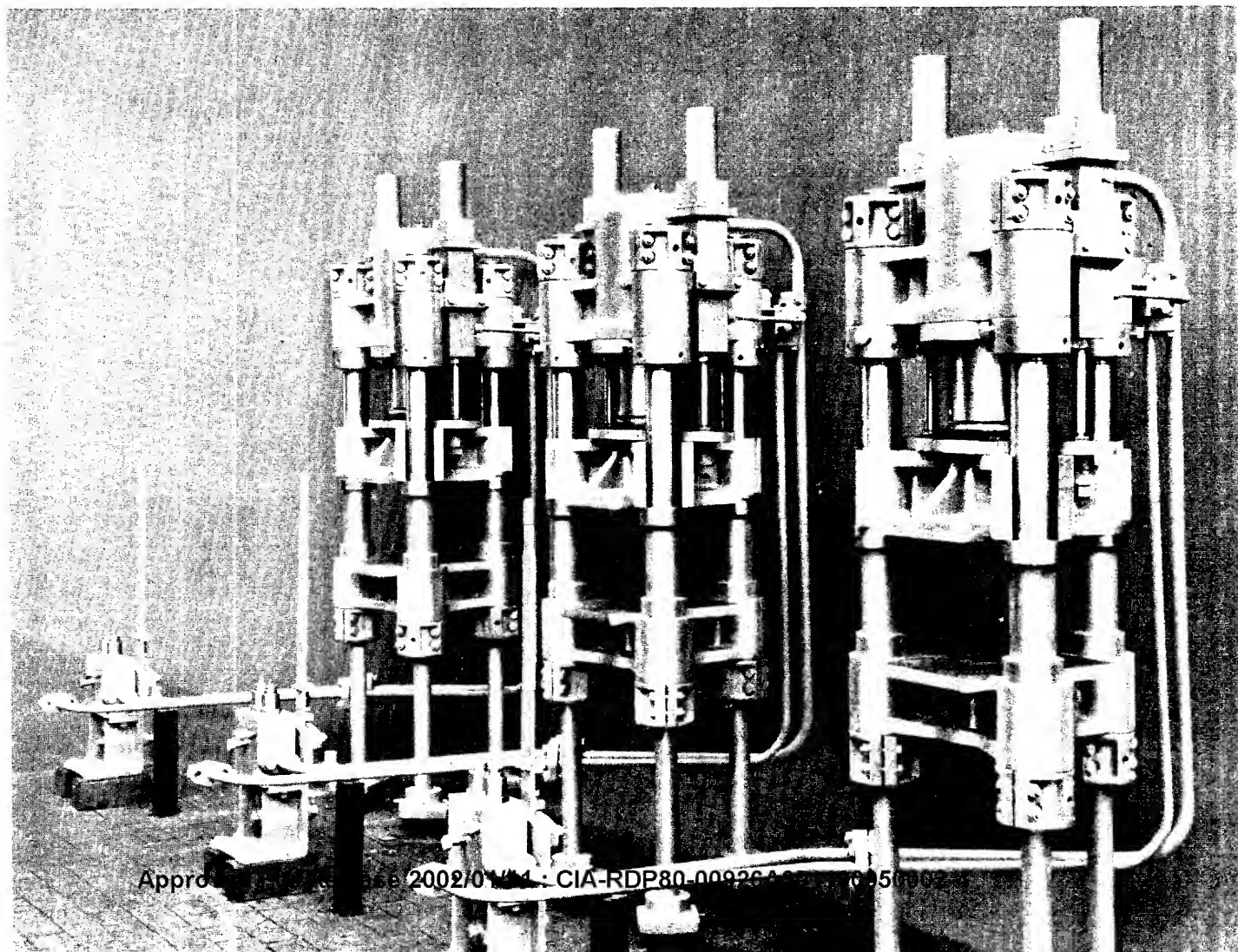
2000 t-hydraulic cable lead sheathing press, lead contents 400 kg. Approved For Release 2002/01/11 : CIA-RDP





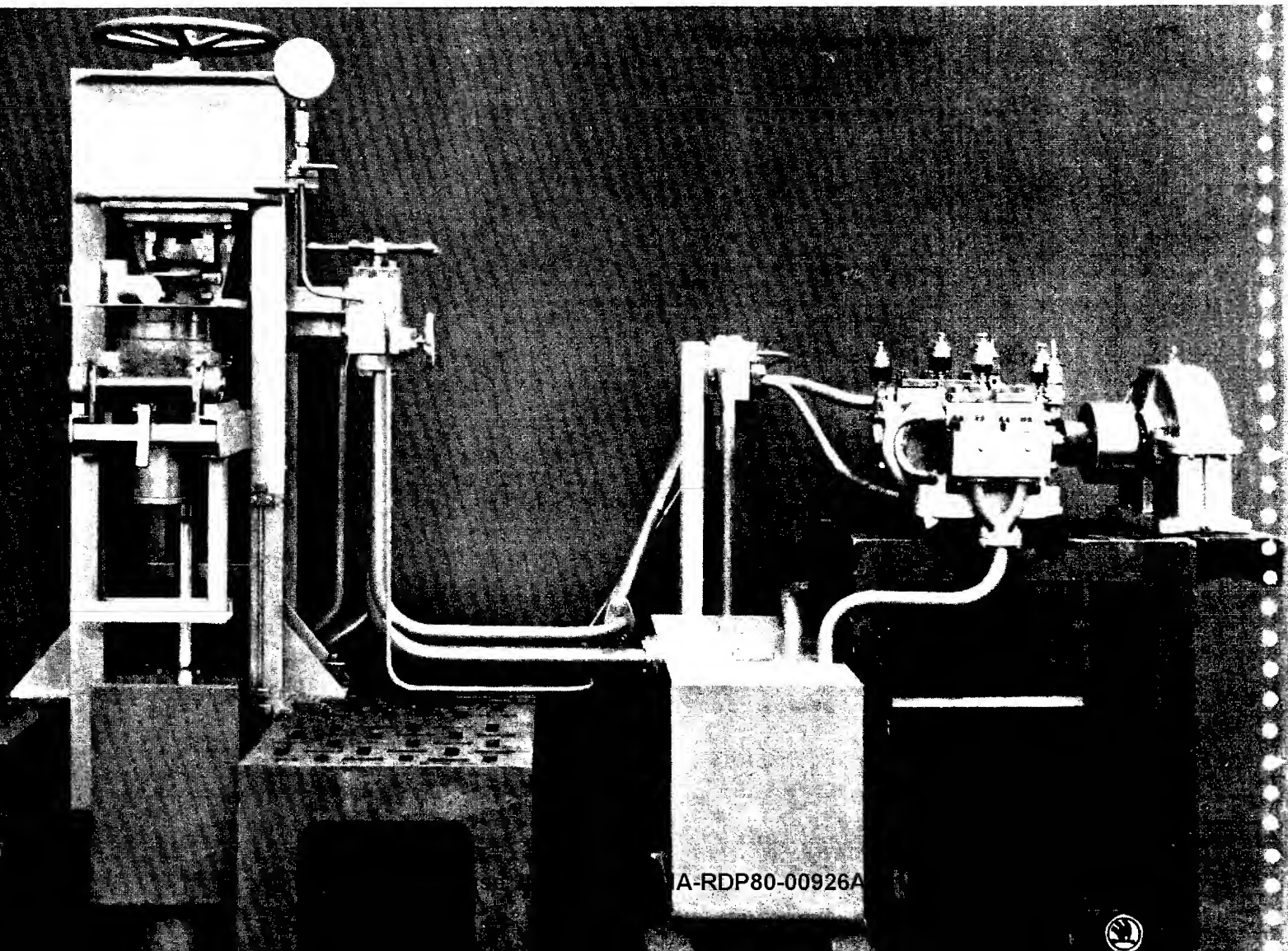
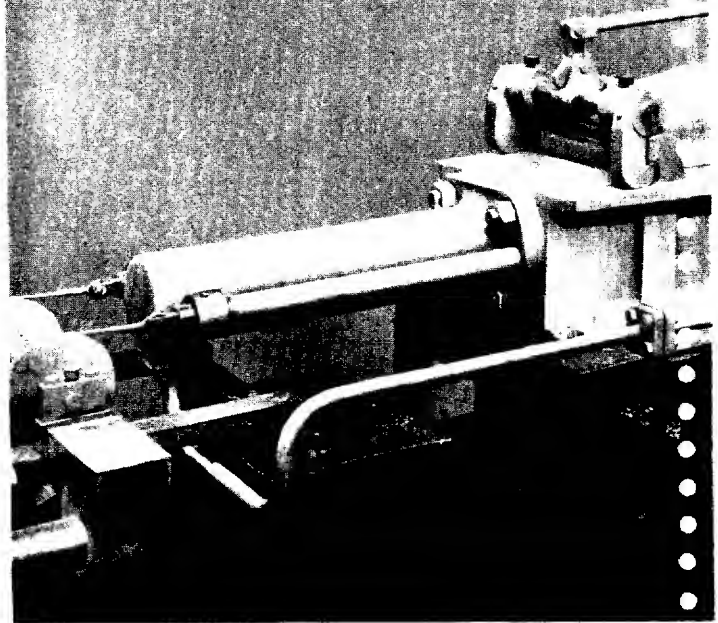
100 t - hydraulic presses for loose materials

80 t - hydraulic presses for loose materials.



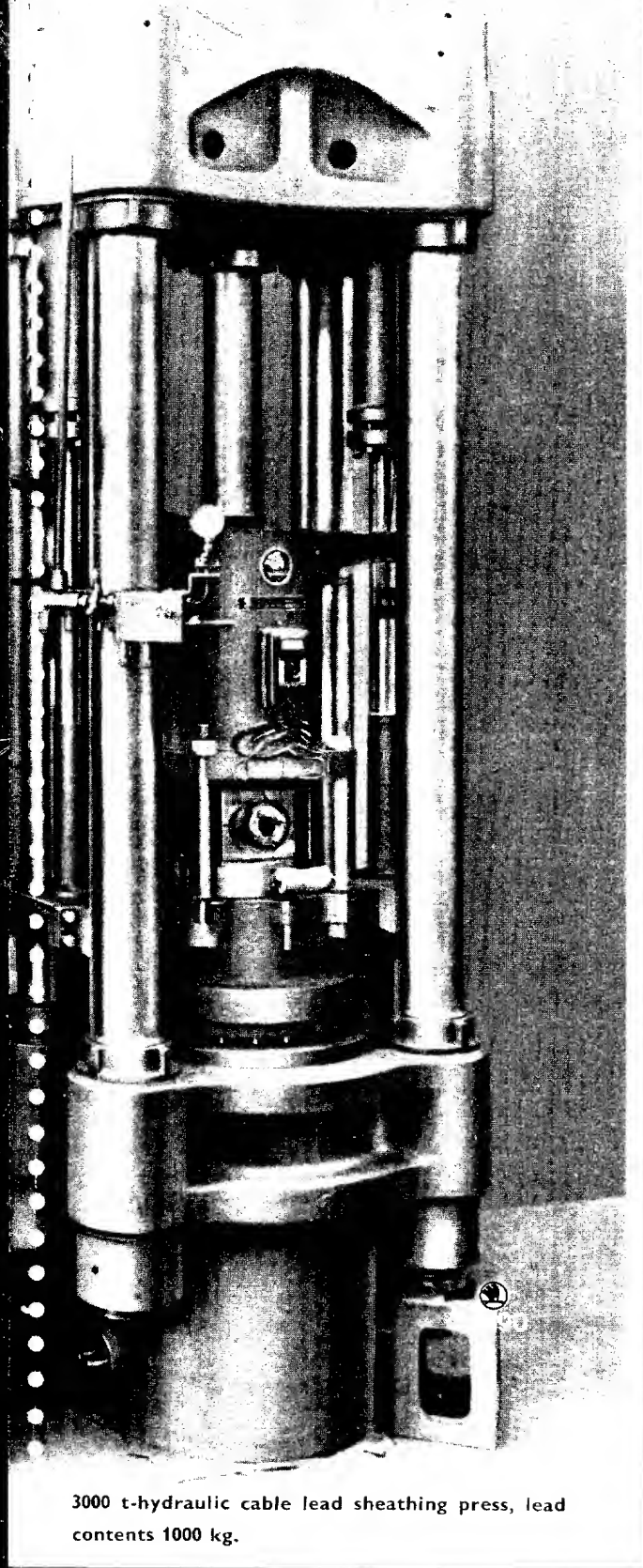
PACKING PRESSES

Hydraulic packing press for iron waste
and iron chips.

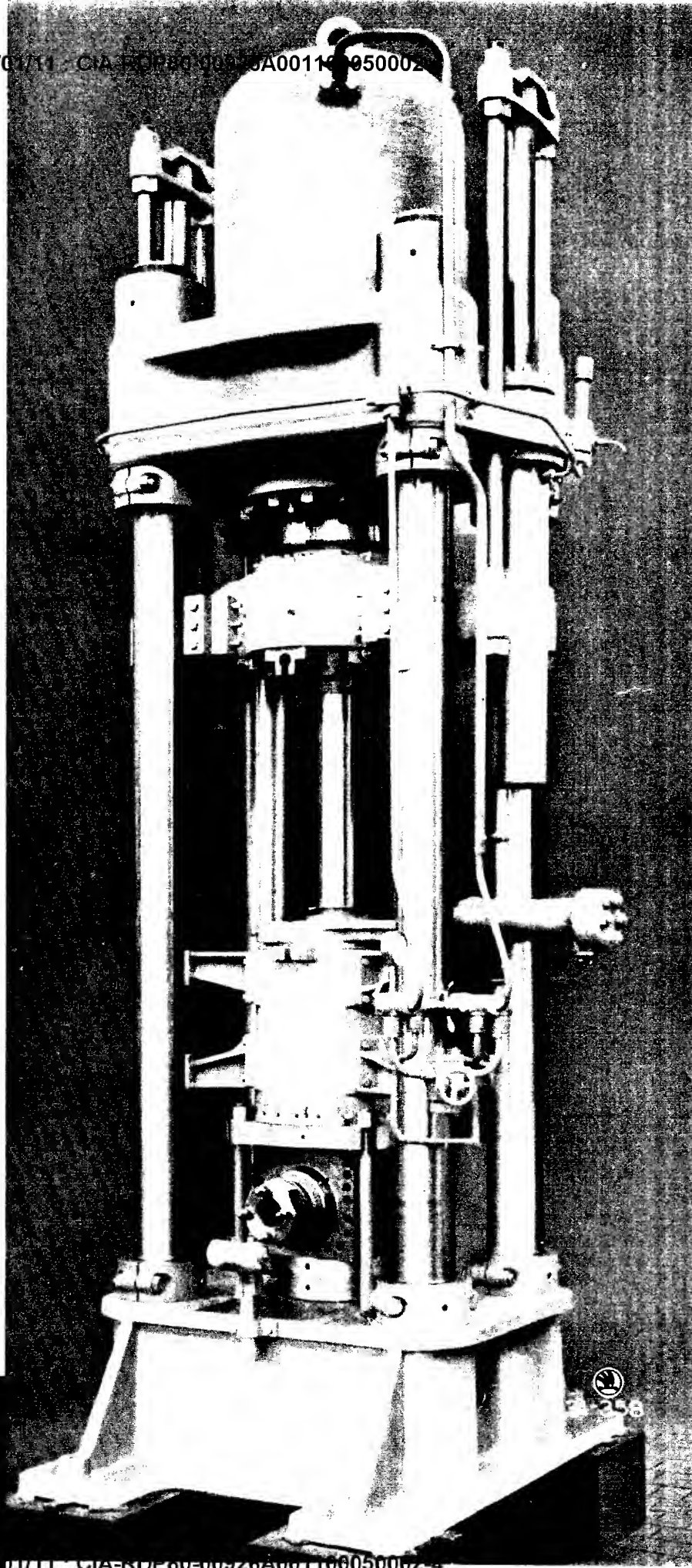


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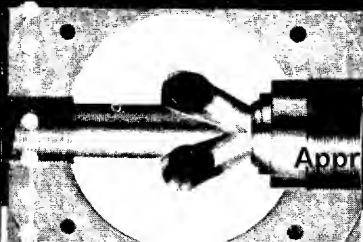




3000 t-hydraulic cable lead sheathing press, lead contents 1000 kg.



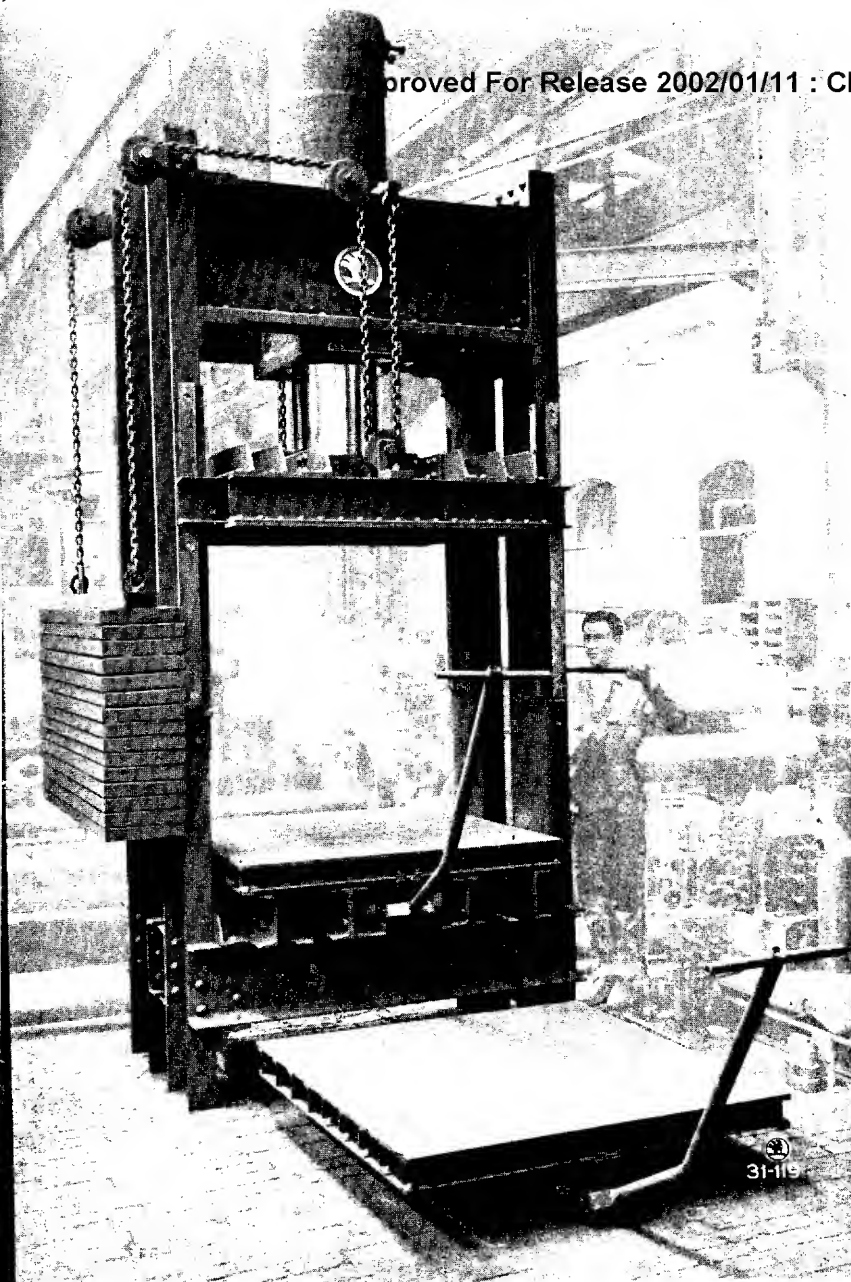
2000 t-hydraulic cable lead sheathing press, lead contents 600 kg.



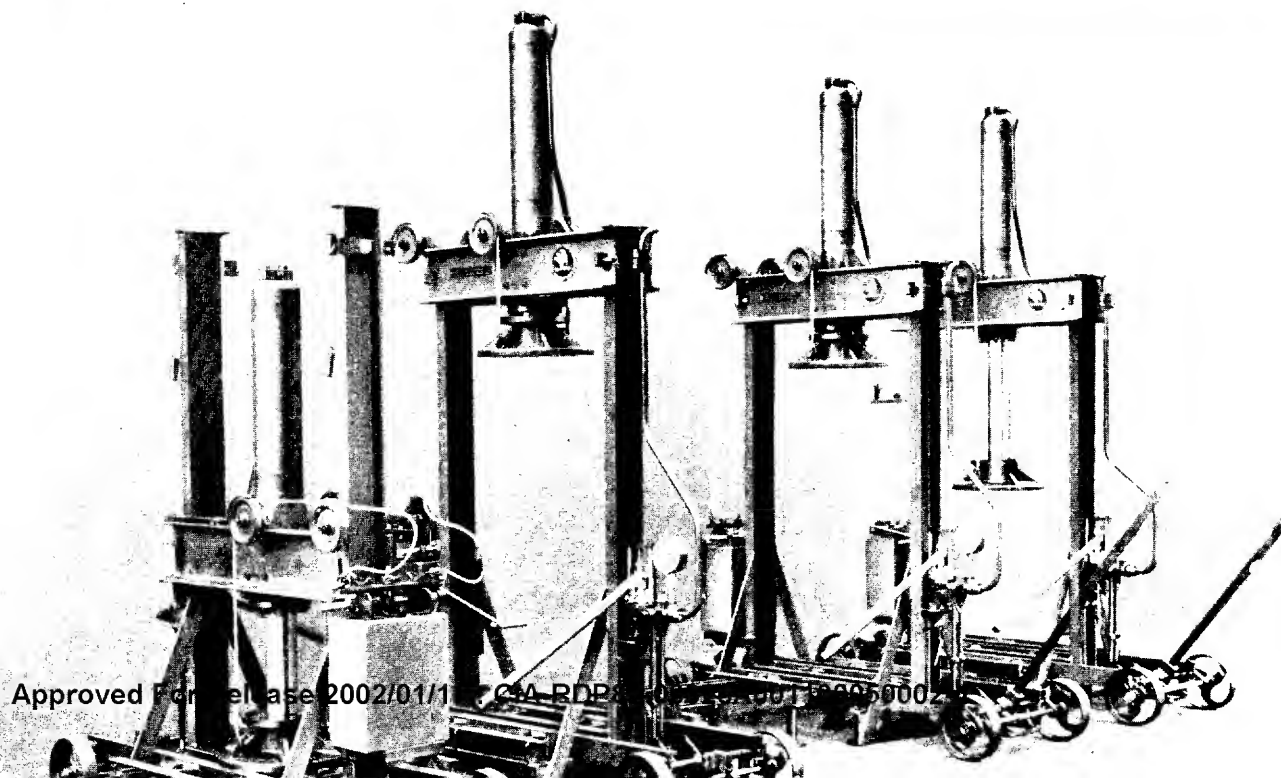
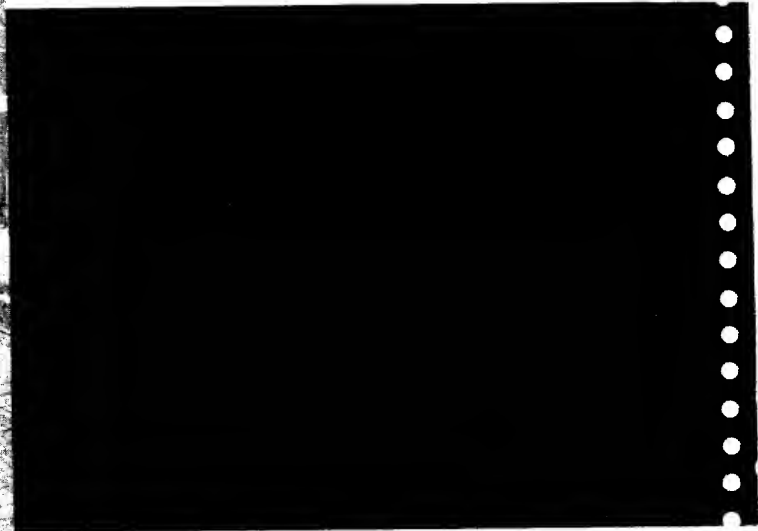
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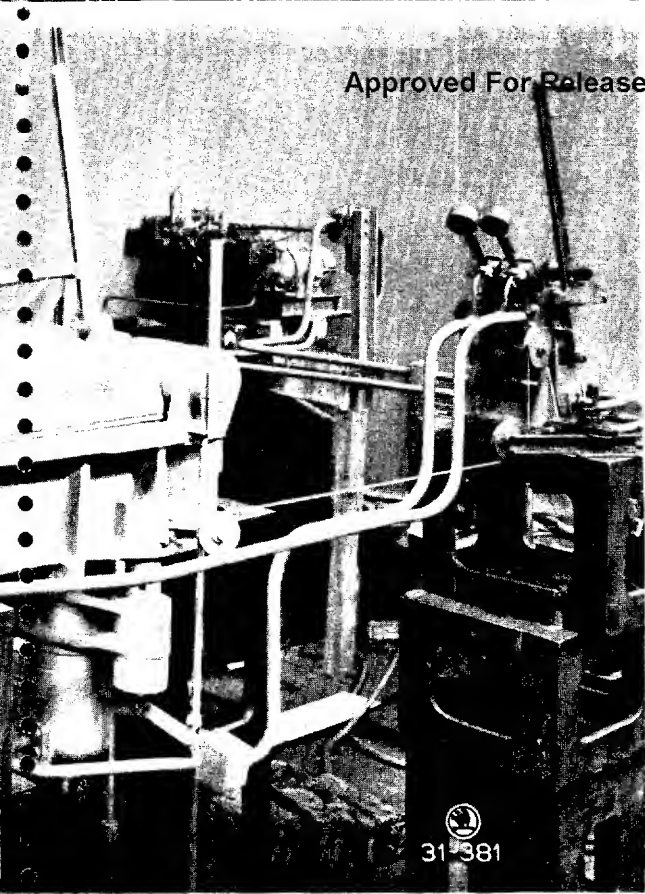
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01/11 : CIA-RDP80-00926A001100050002-4

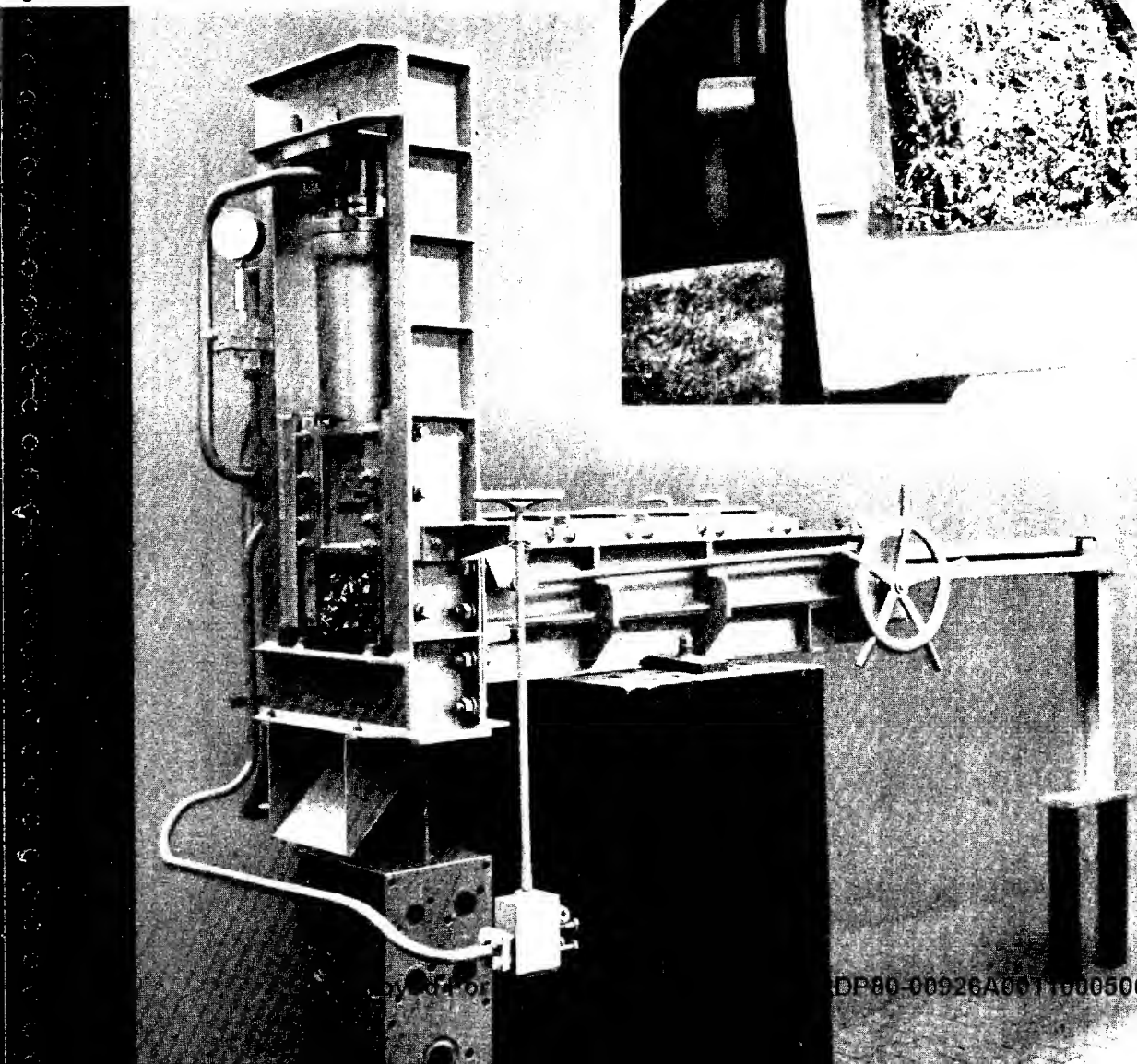
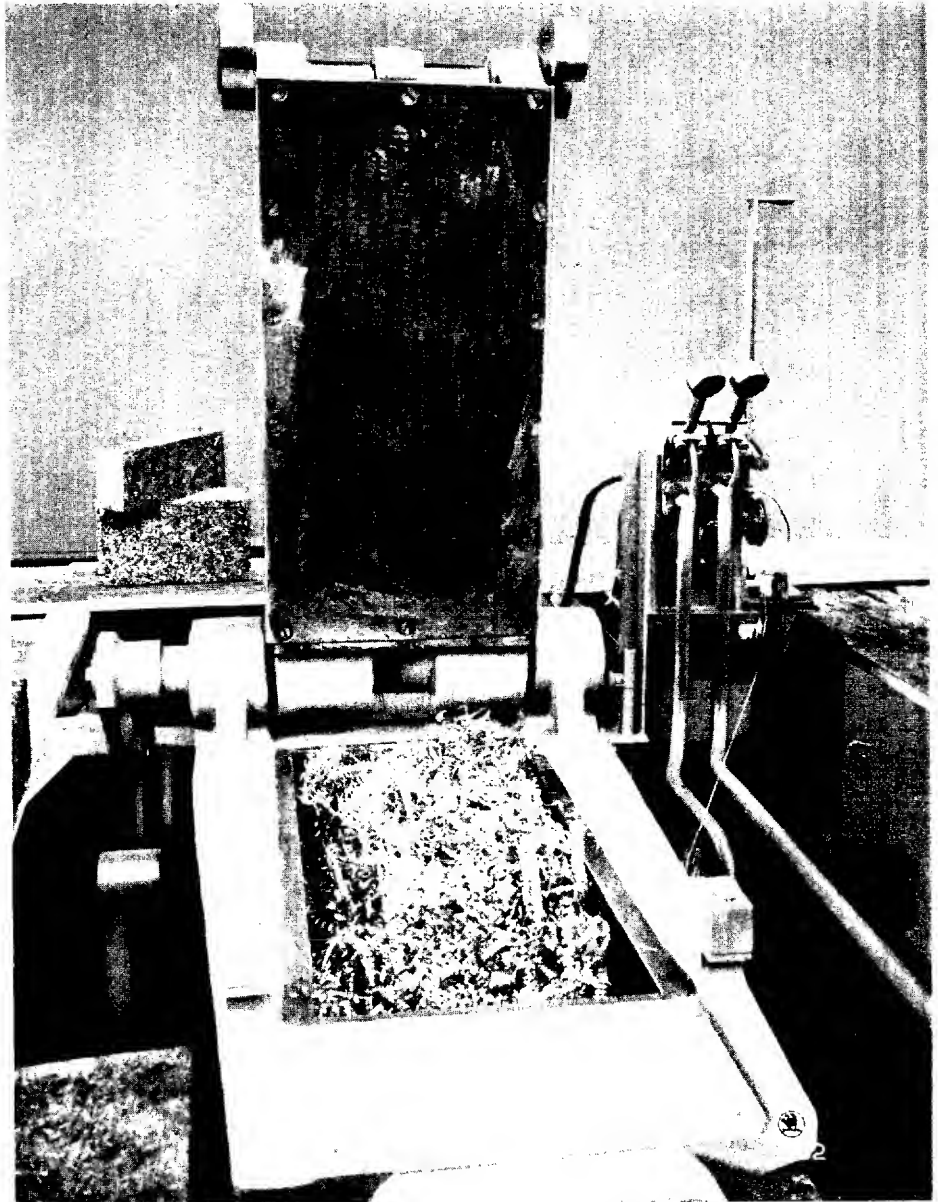


Hydraulic press for manufacturing and packing of paper.



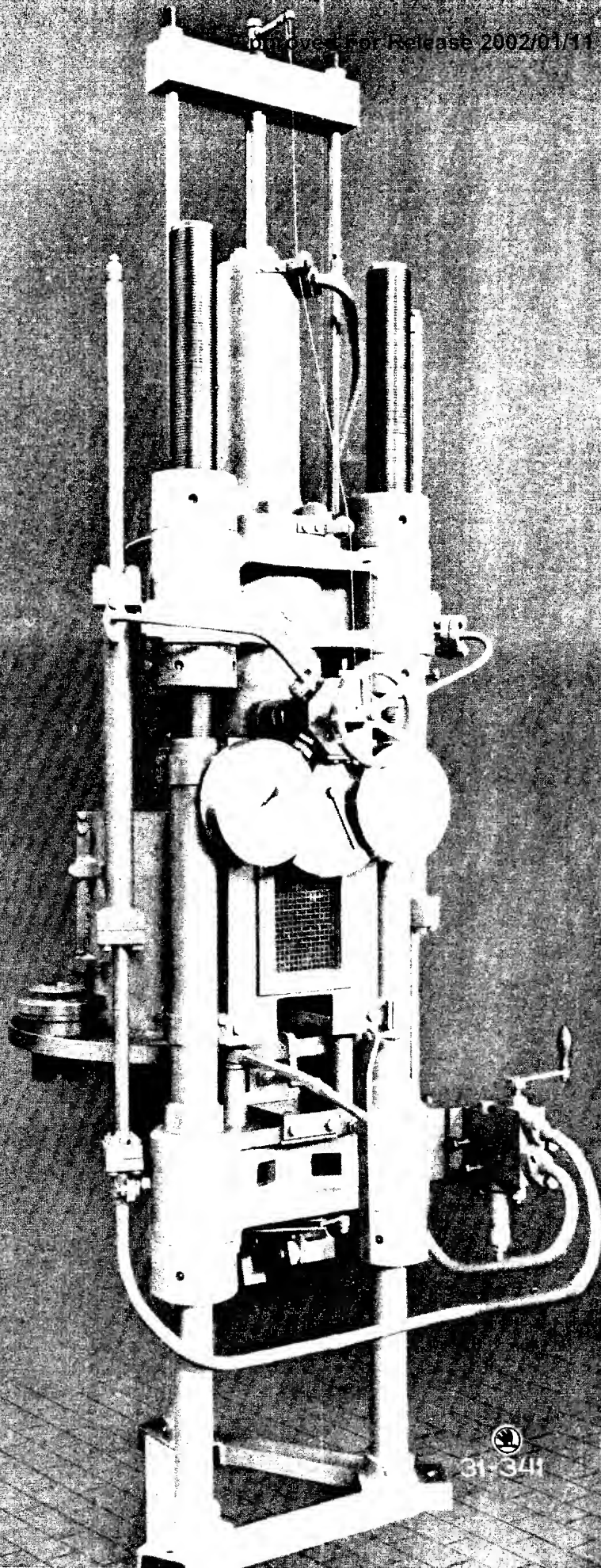


Hydraulic press for sheet iron waste and iron chips (open).

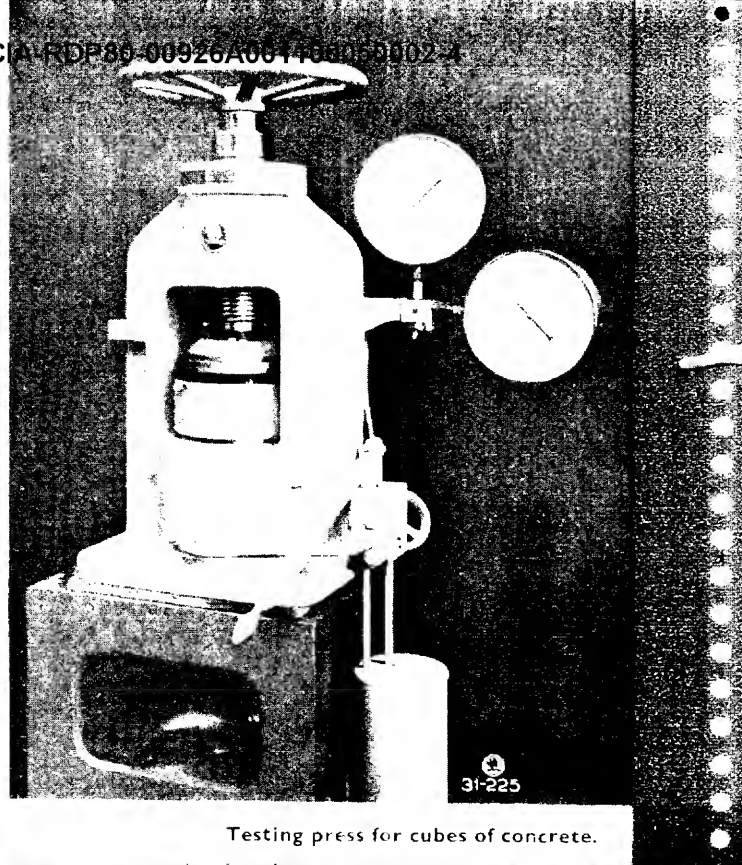


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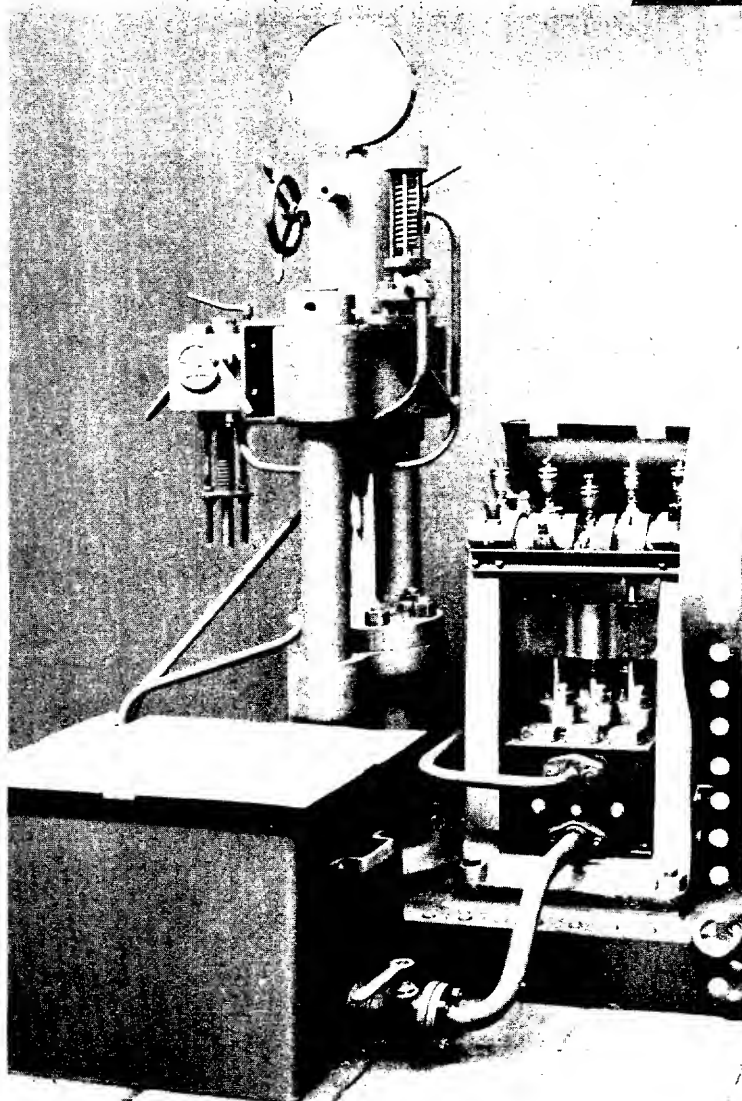
Automatic hydraulic shears for hip crushing.



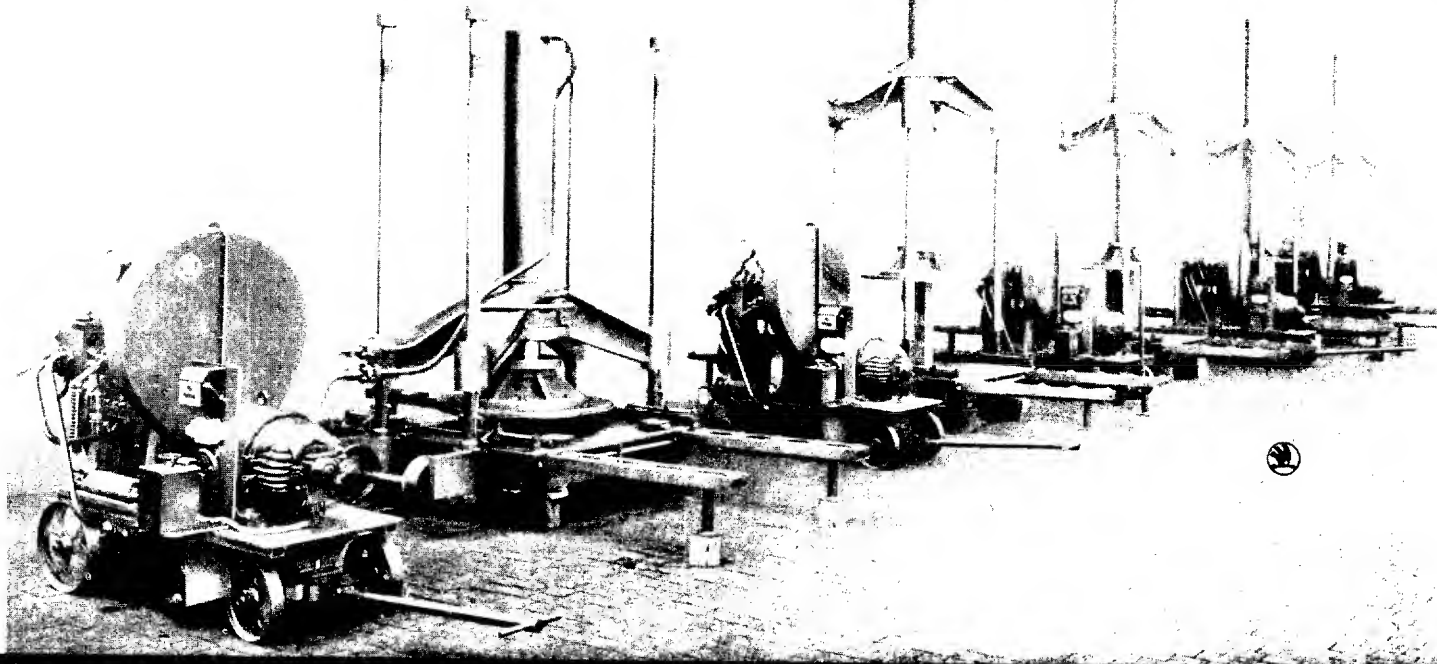
Approved For Release 2002/01/11 : CIA-RDP80-00926A001100050002-4
Hydraulic press for testing hollow bodies.

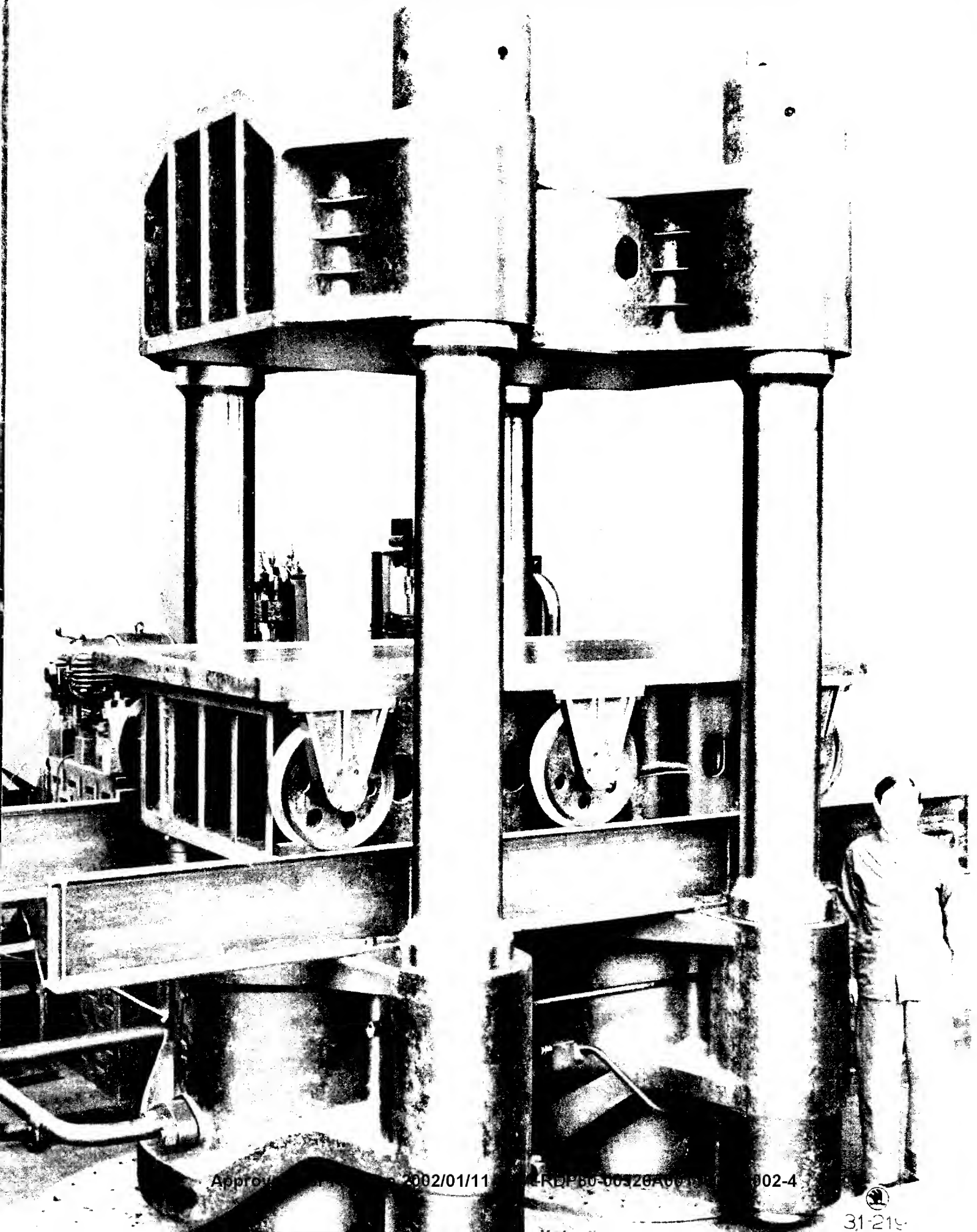


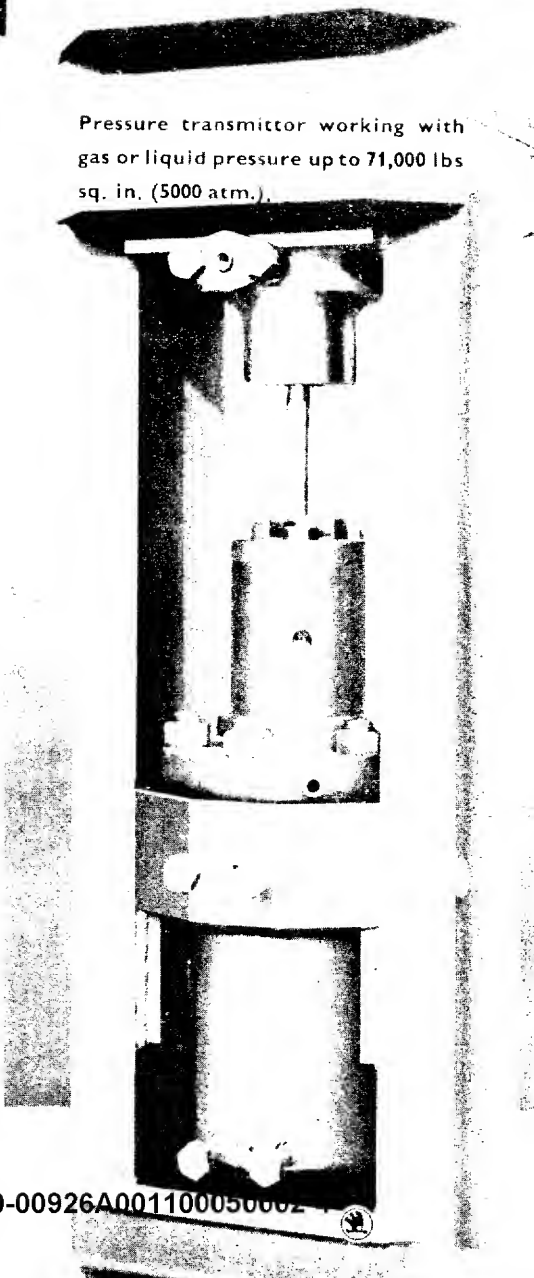
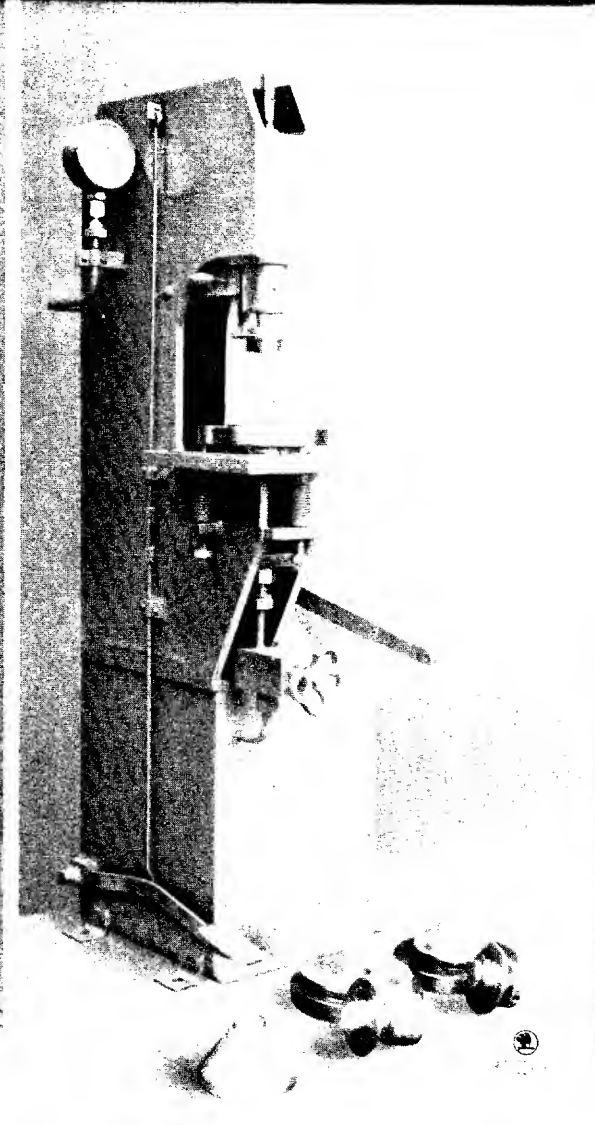
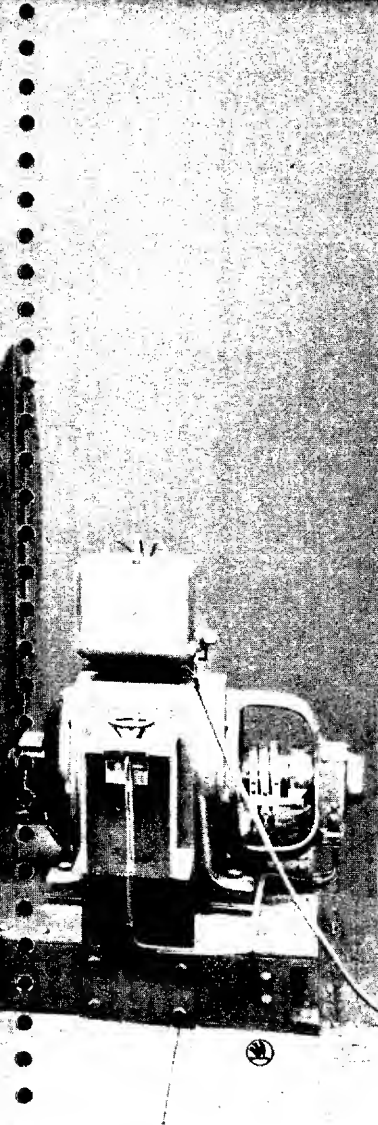
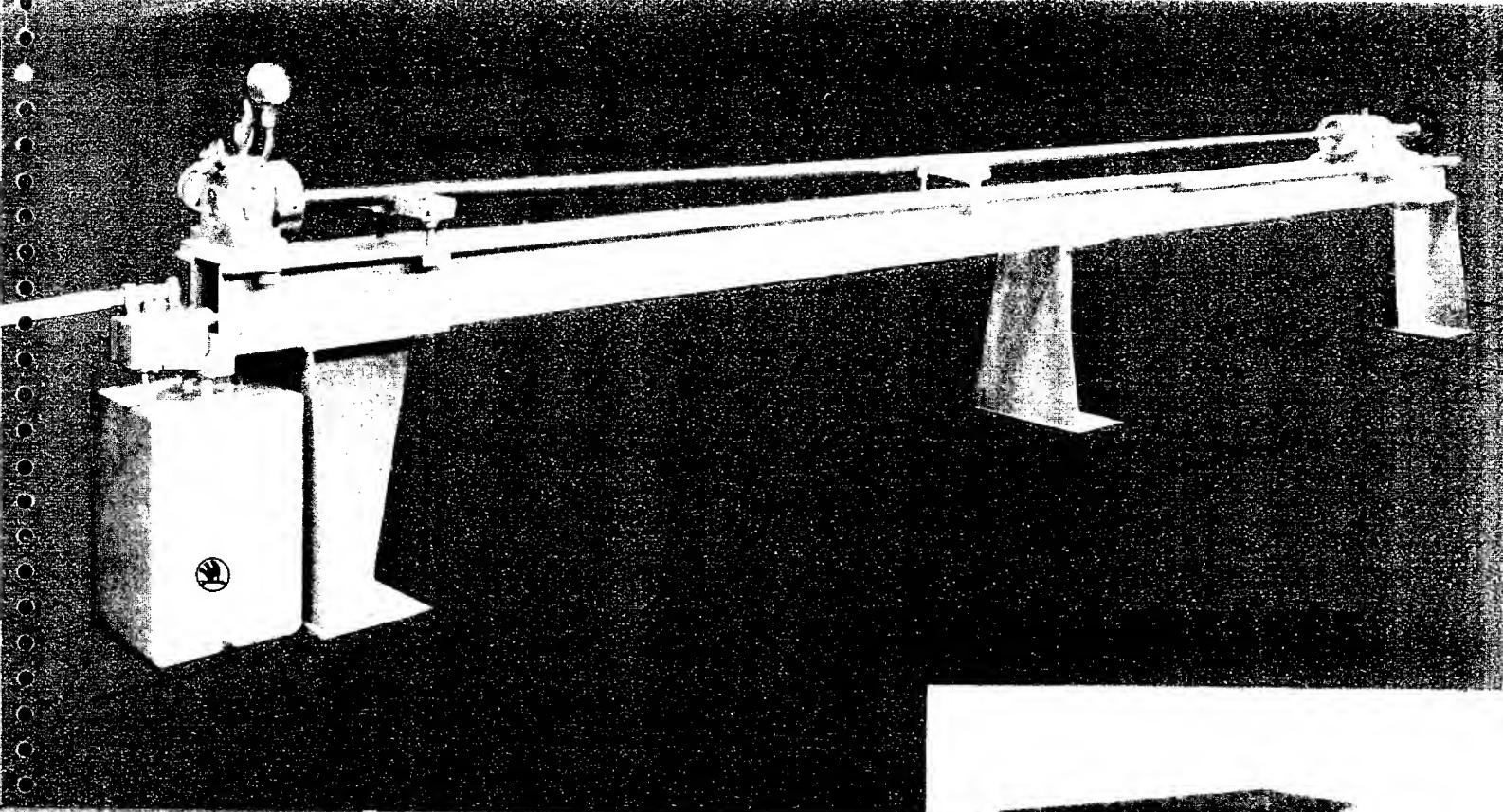
Testing press for cubes of concrete.

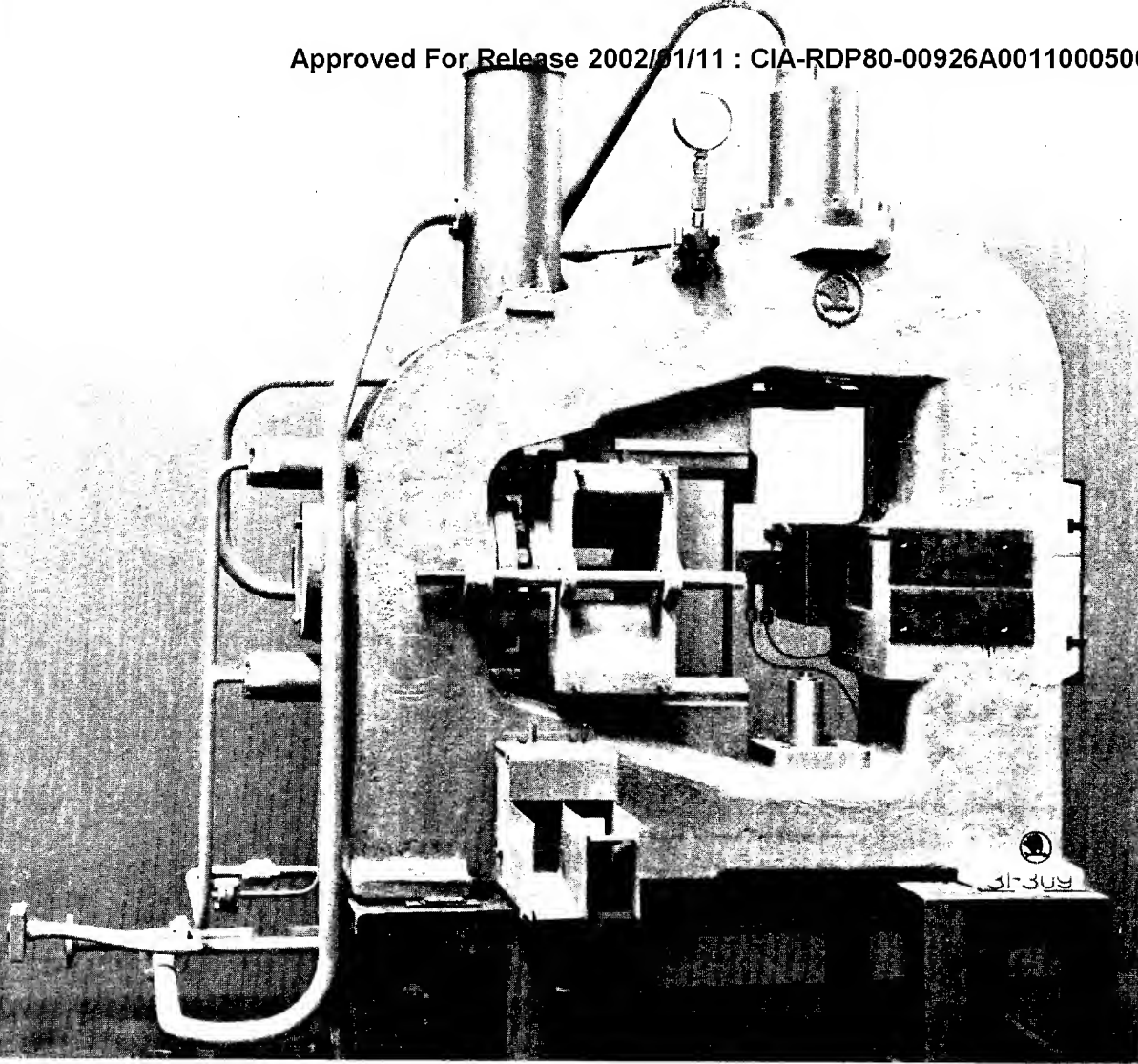


Hydraulic testing device for boilers, machine components, fittings etc by a pressure of up to 17,000 lbs sq. in. (1200 Atm)





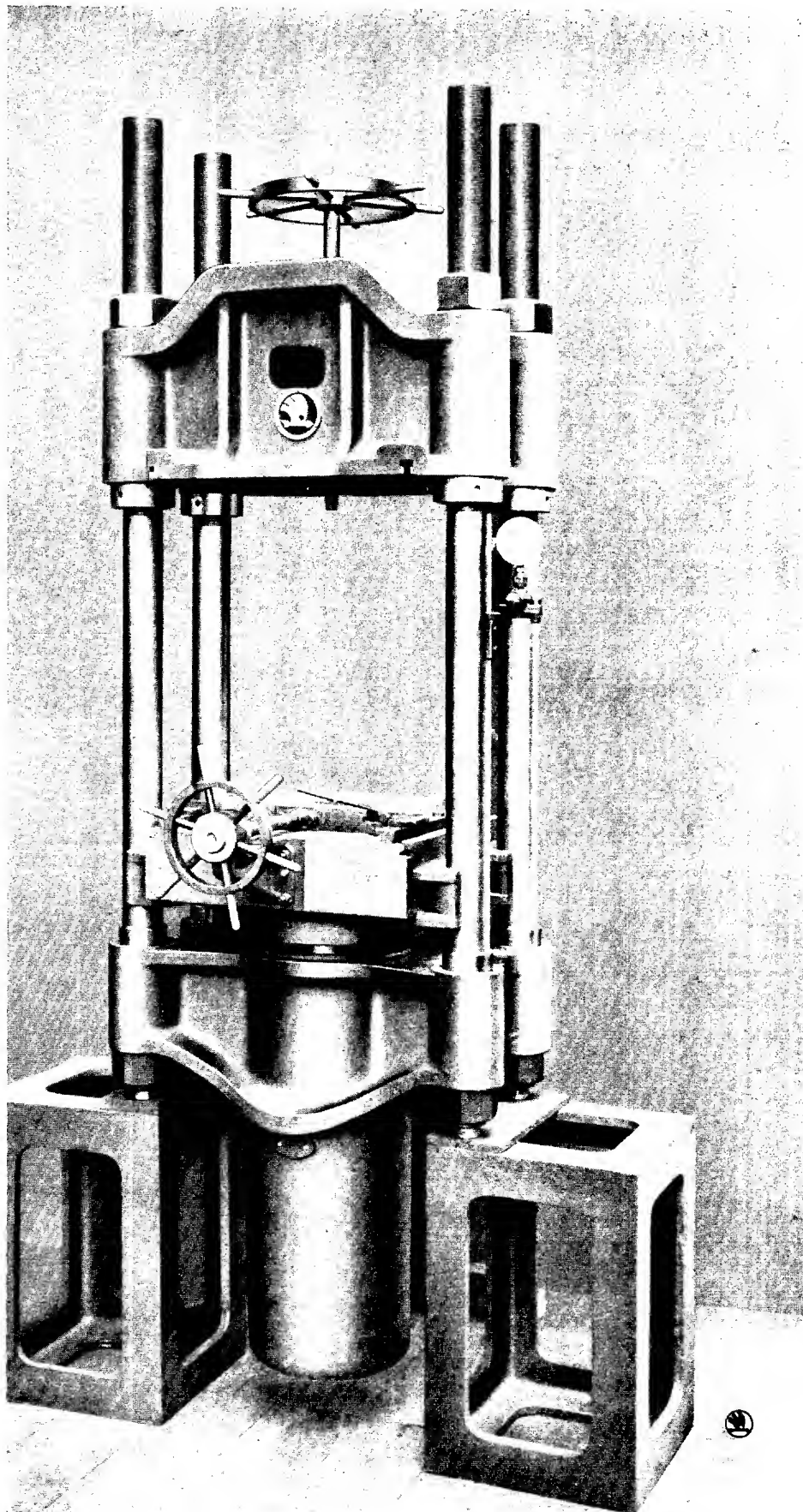




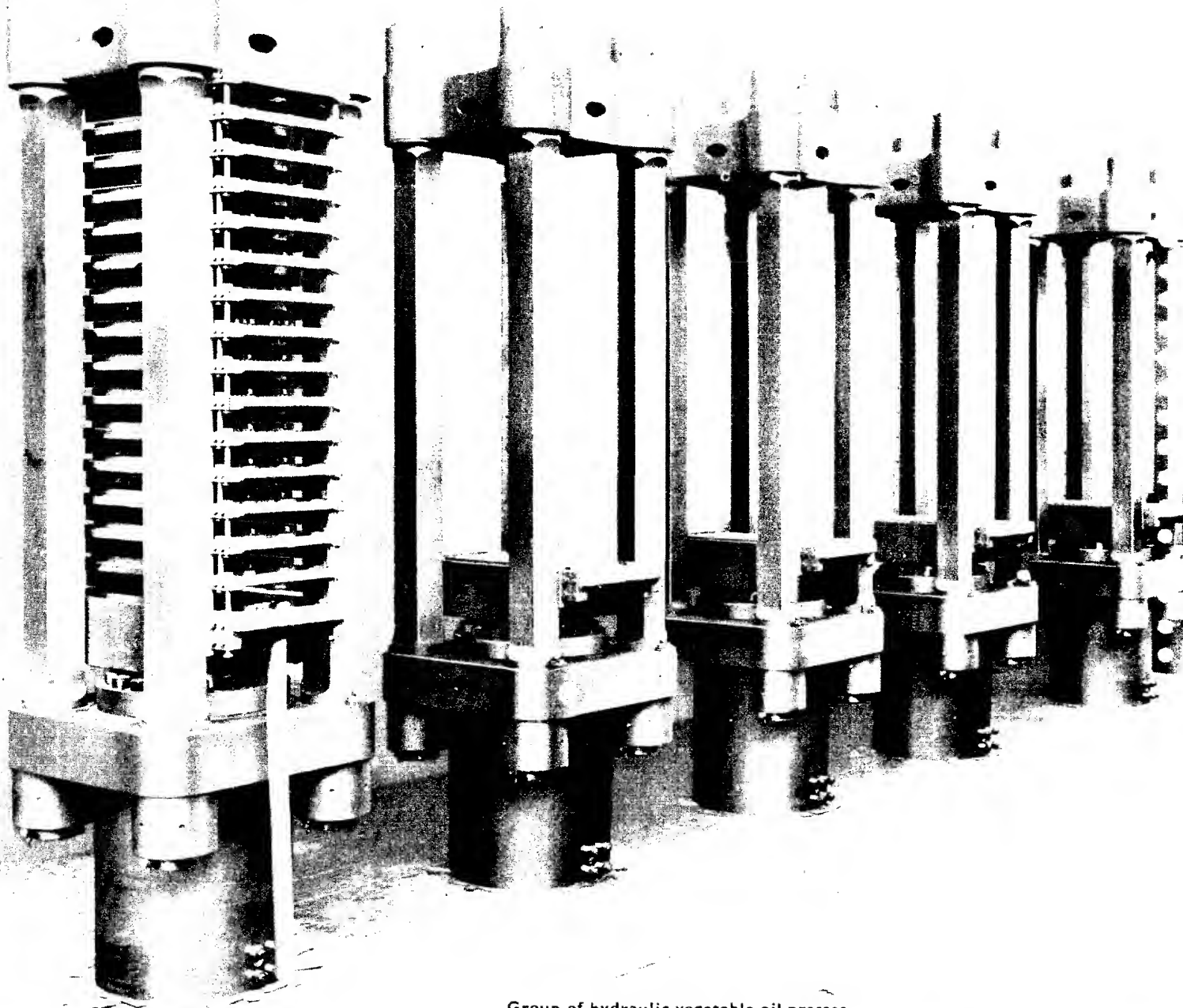
Hydraulic die-casting metal press.

Hydraulic punching press.

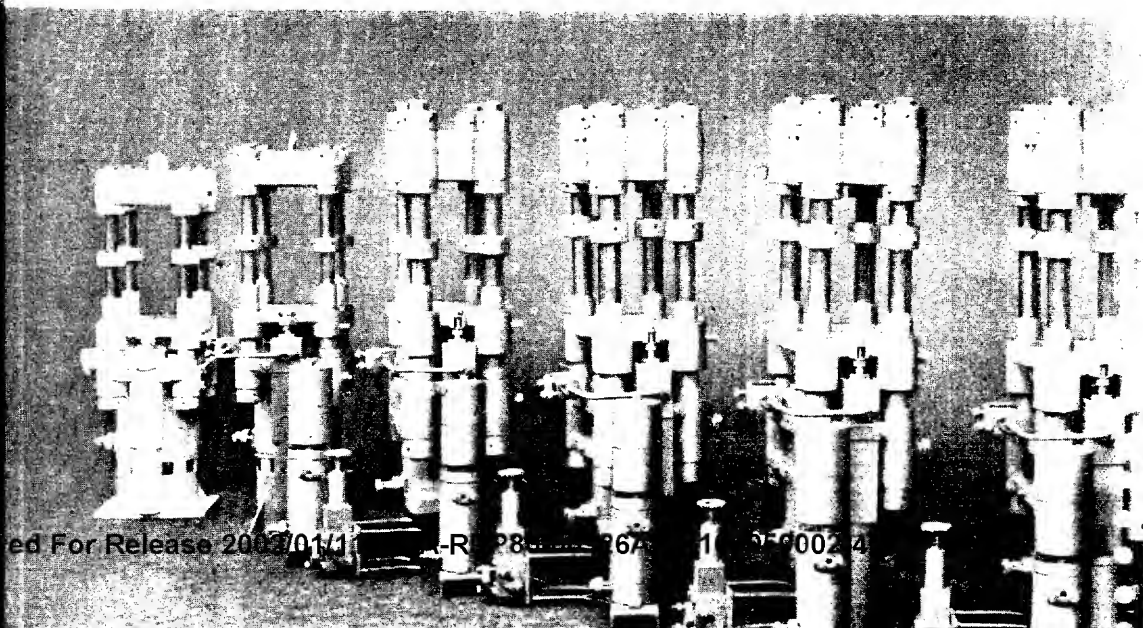


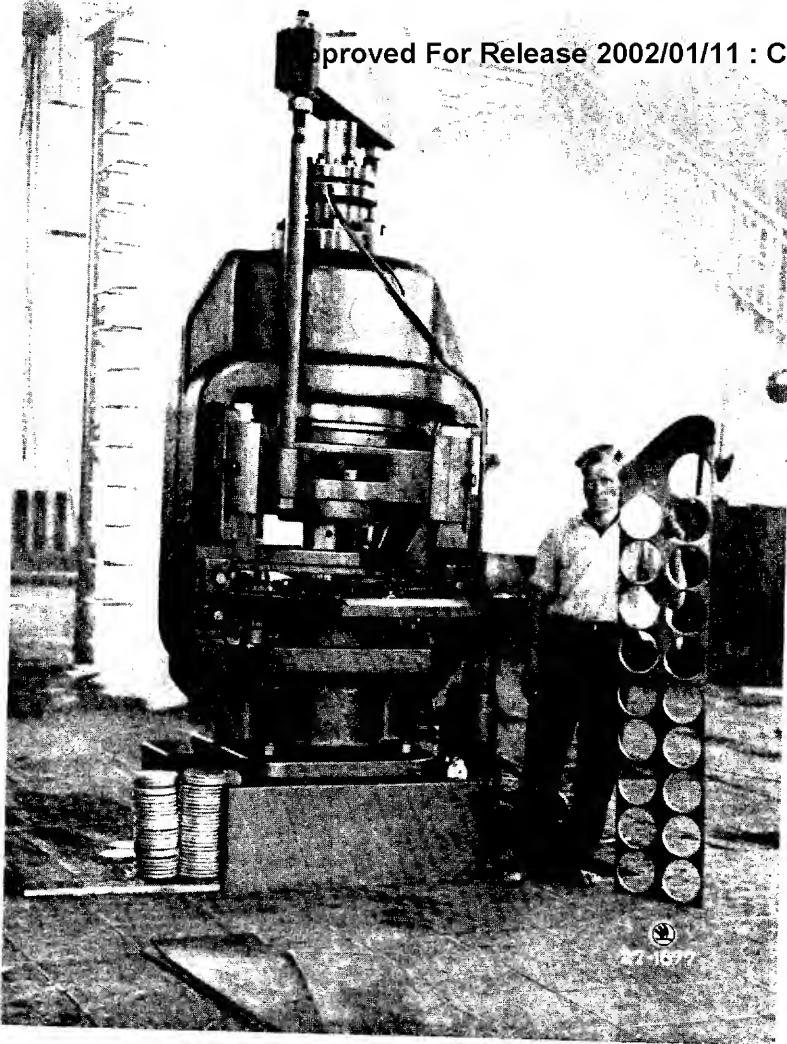


Hydraulic press for paper products.



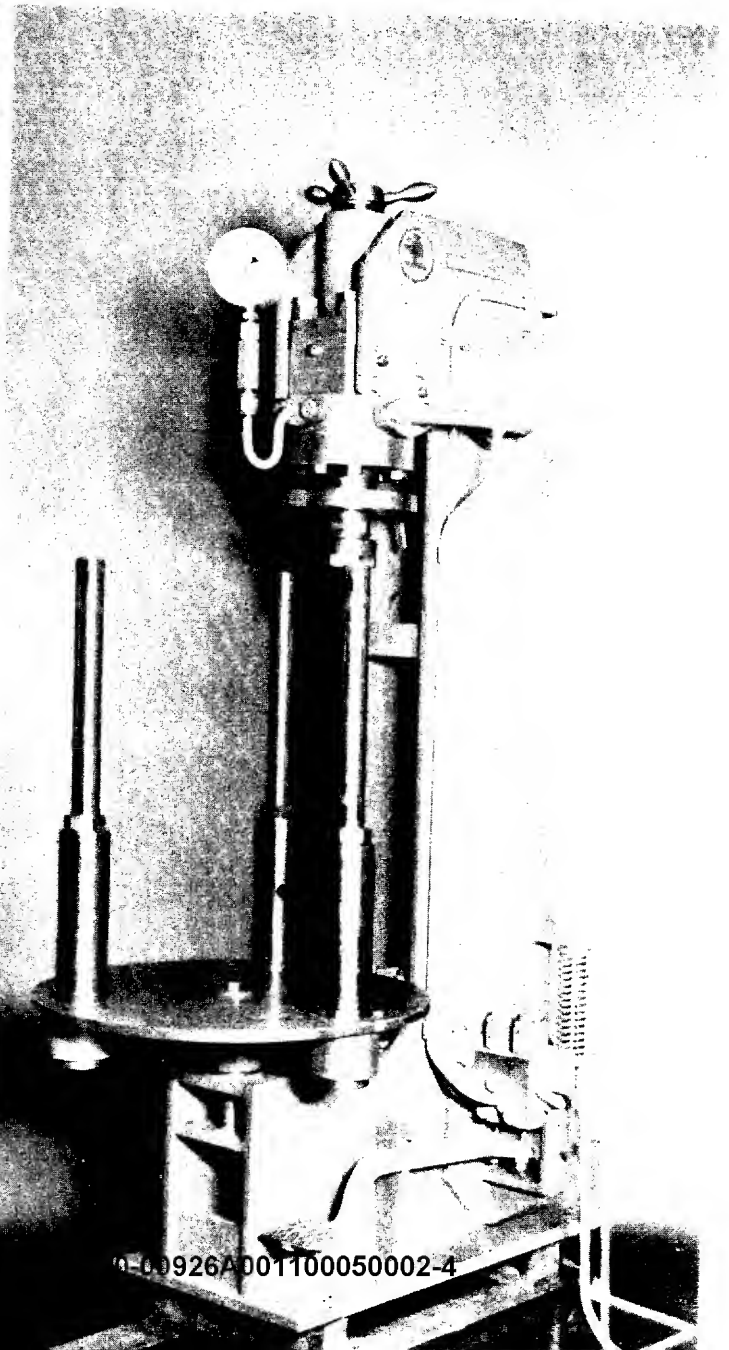
Group of hydraulic vegetable oil presses.

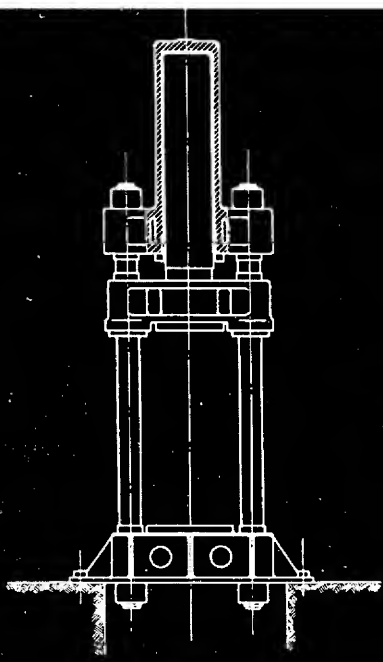




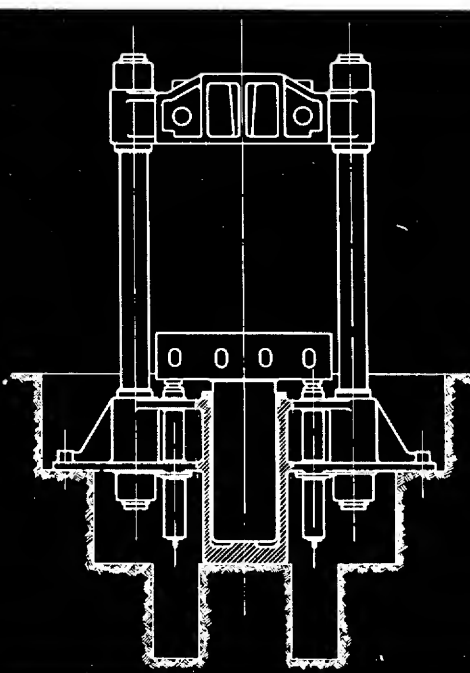
Hydraulic stamping presses.

Hydraulic marking press.

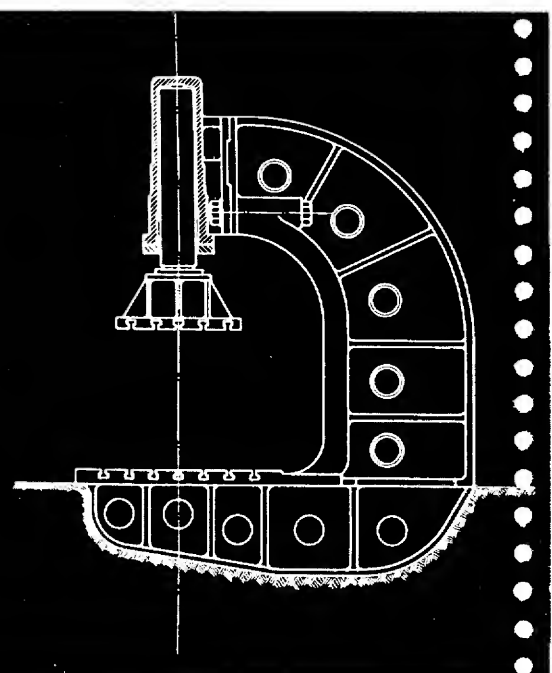




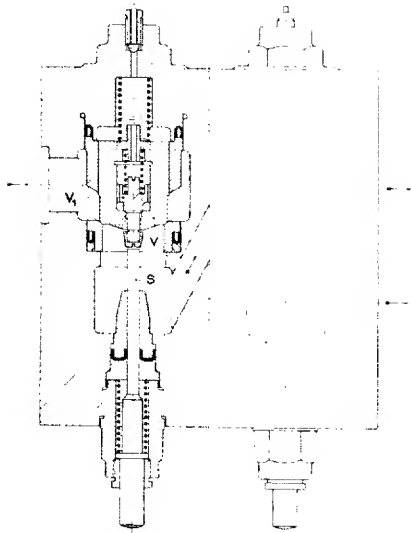
Vertical press with upper press cylinder.



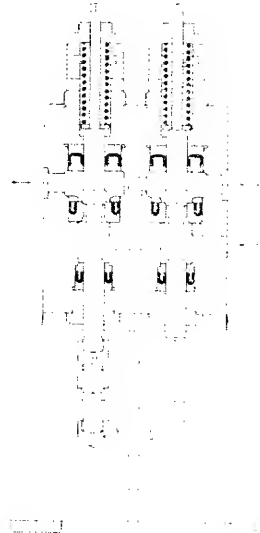
Vertical press with lower press cylinder.



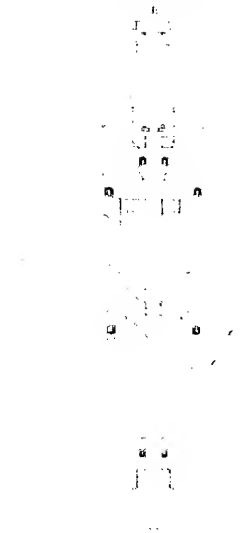
Hydraulic press with C-frame.



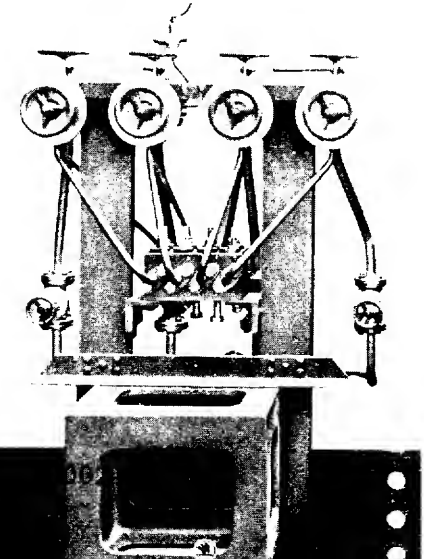
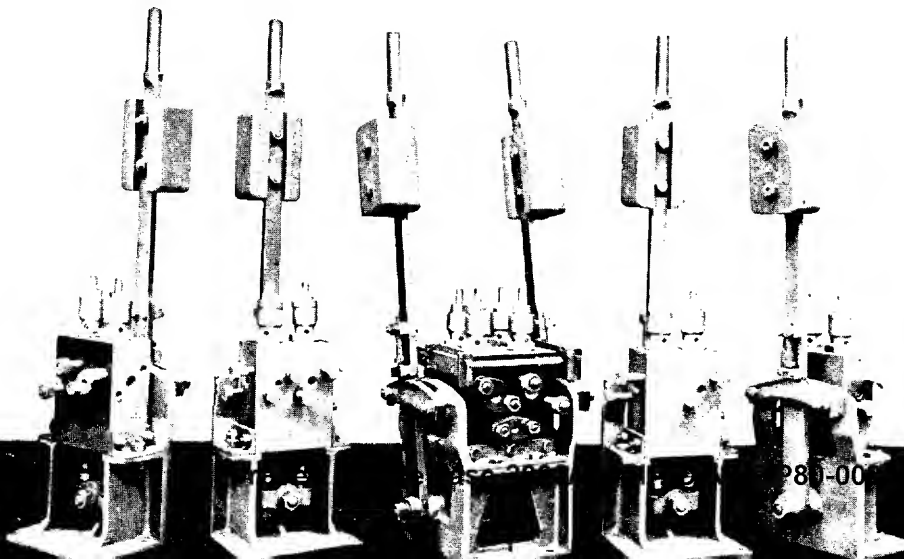
Control valve, designed as a double flap valve.

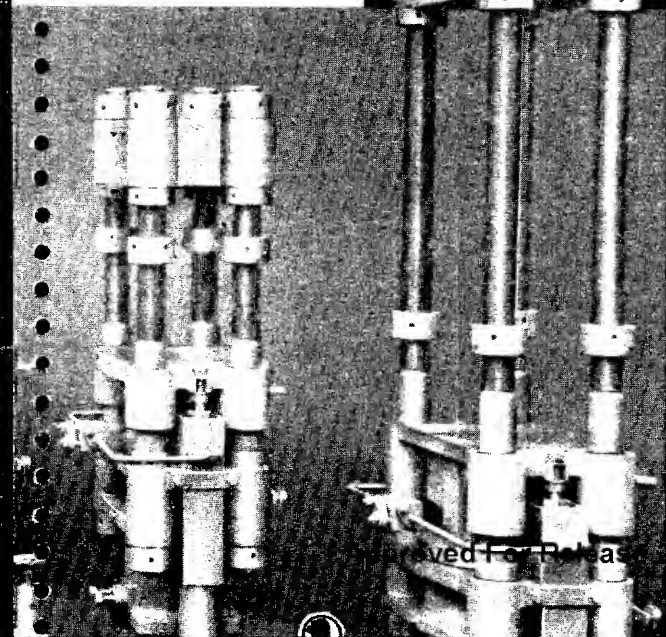
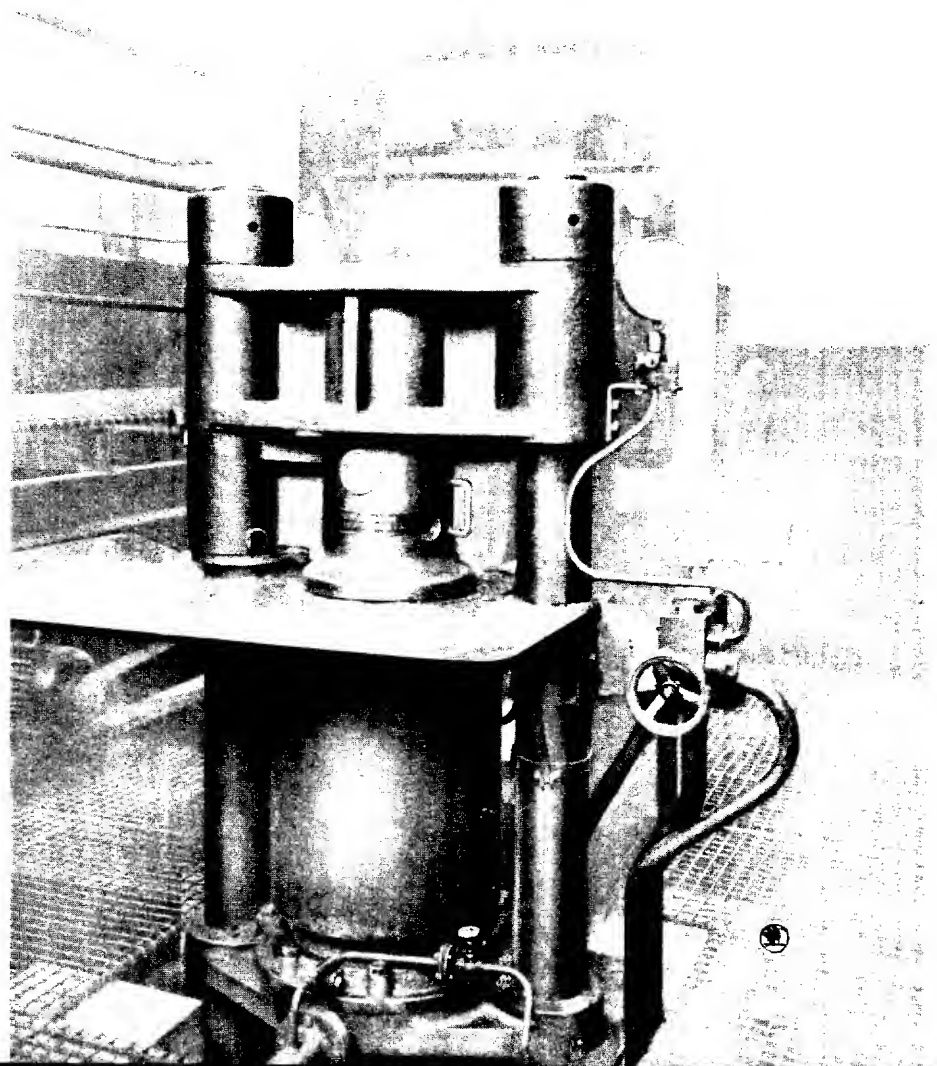
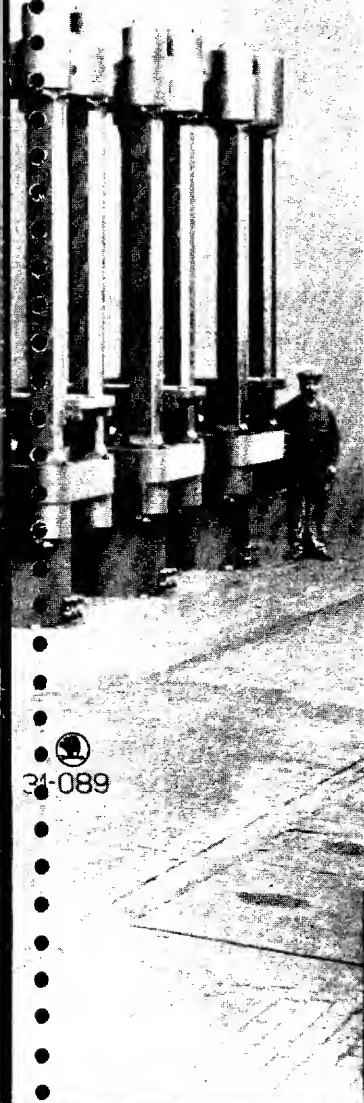


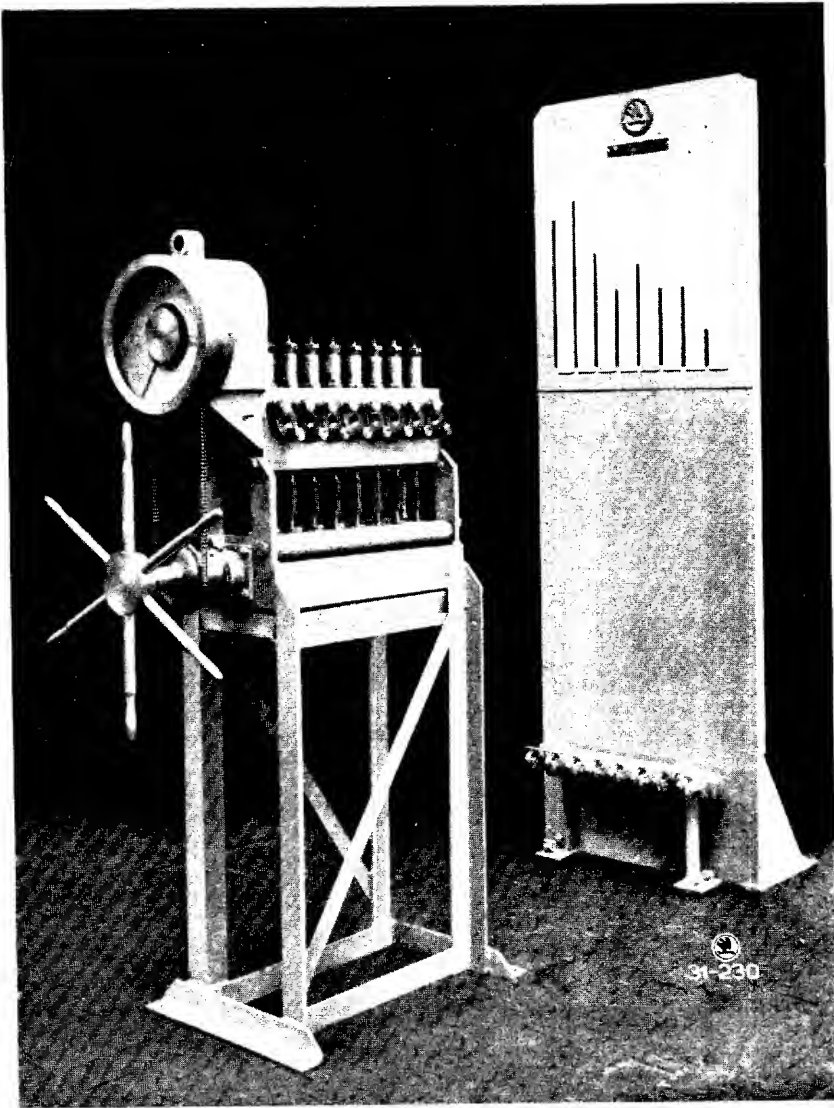
Control valve in spindle design.



Control valve combined of a spindle valve with a non-return valve.

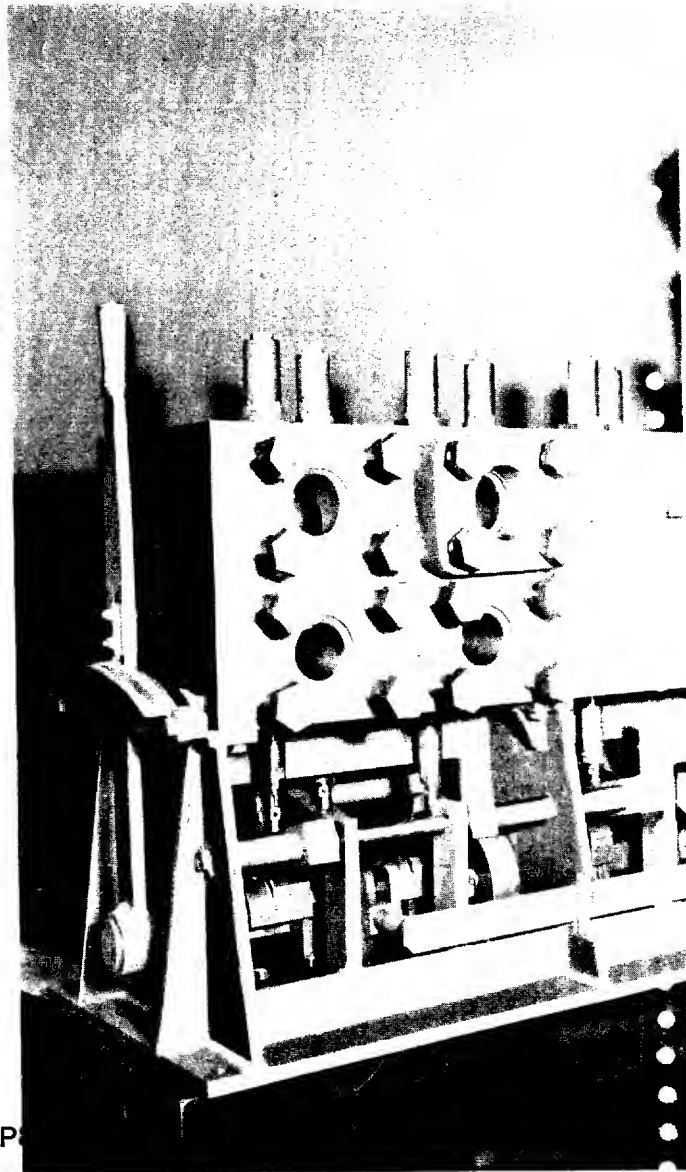


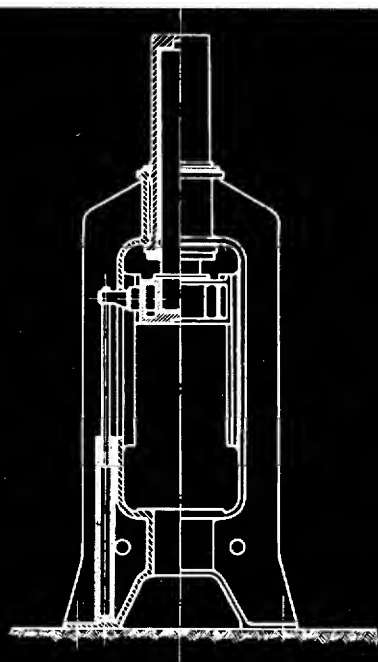




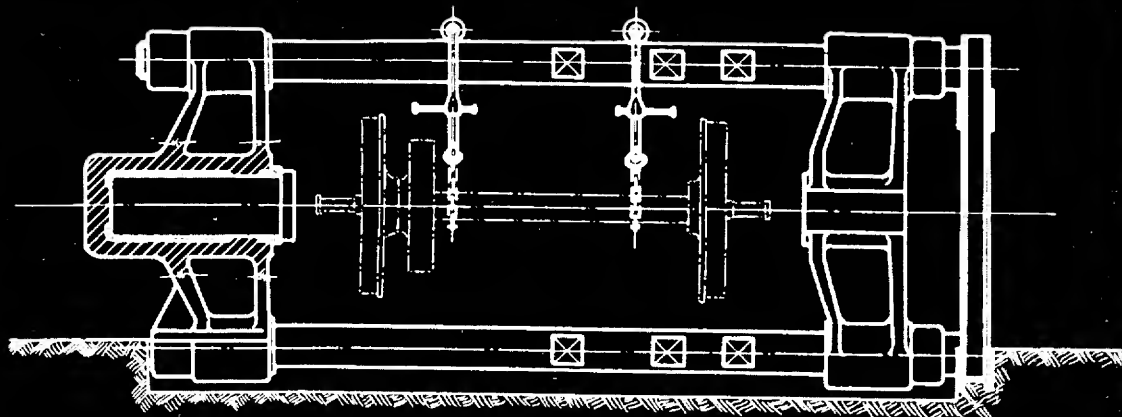
Central control gear with 16 valves for 8 hydraulic press cylinders controlling continuous operation. R. H. central stroke indicator.

Hydraulic control of a forging press.

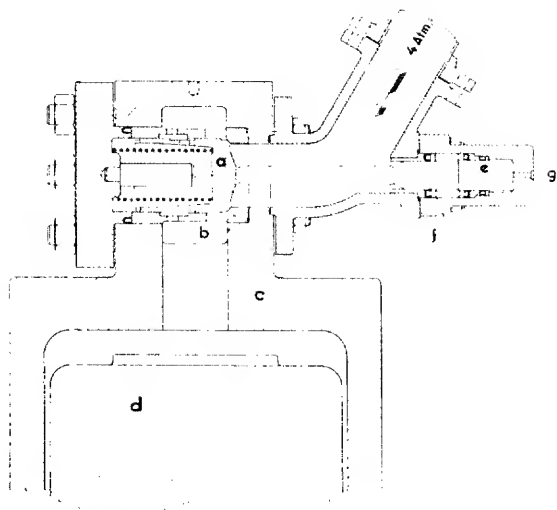




Hydraulic press with O-frame.



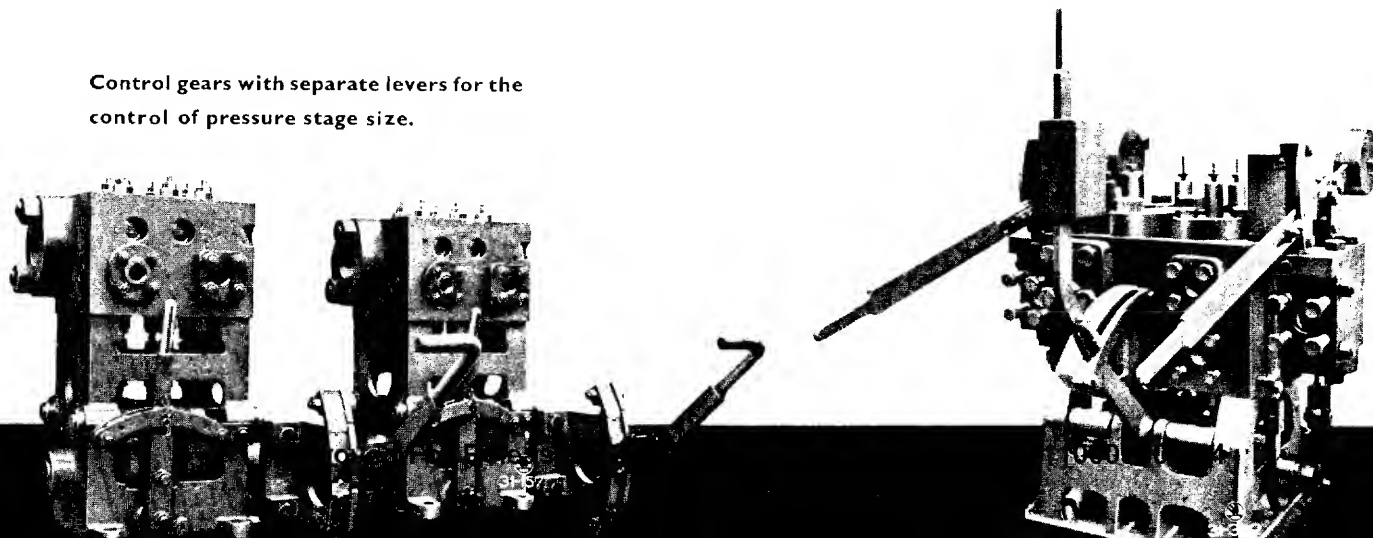
Horizontal hydraulic press.



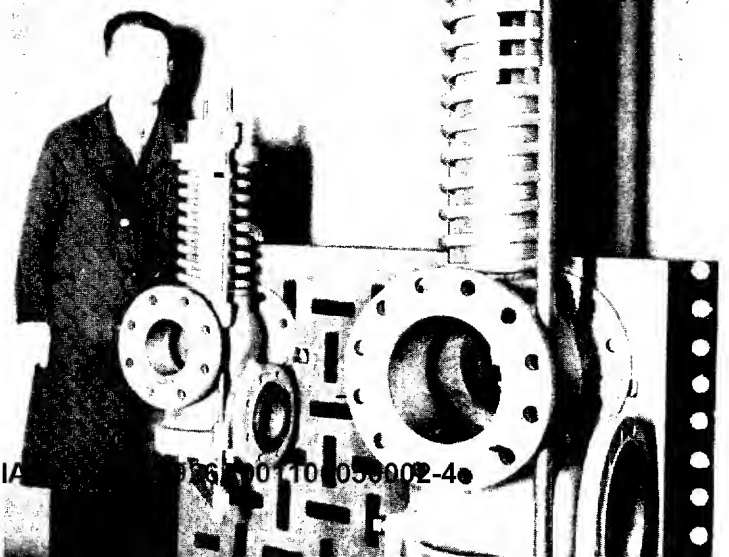
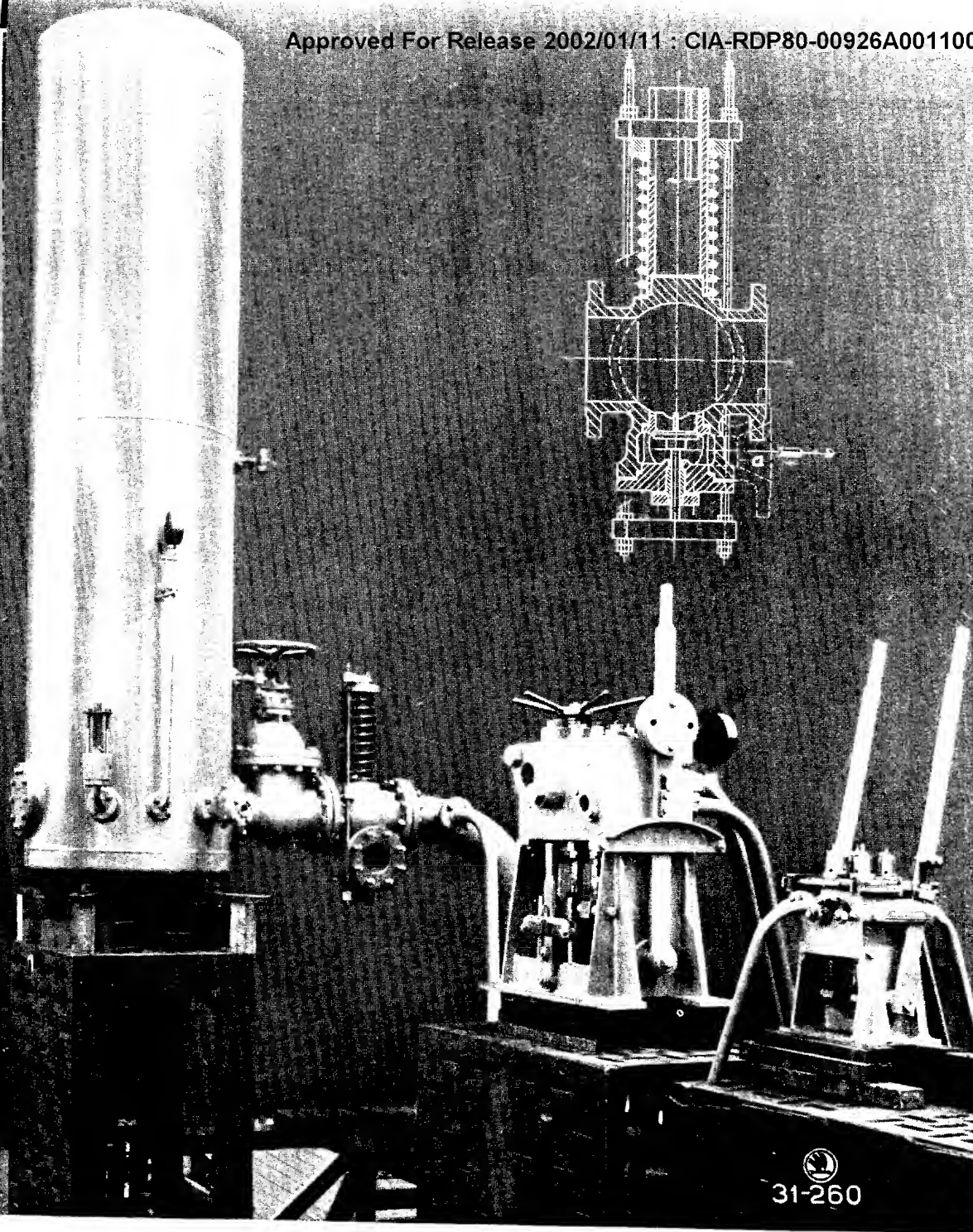
Valve for charging the press cylinder with low-pressure water during the no-load movement of the press plunger.

HYDRAULIC CONTROL VALVE GEARS FOR PRESS CYLINDERS

Control gears with separate levers for the control of pressure stage size.

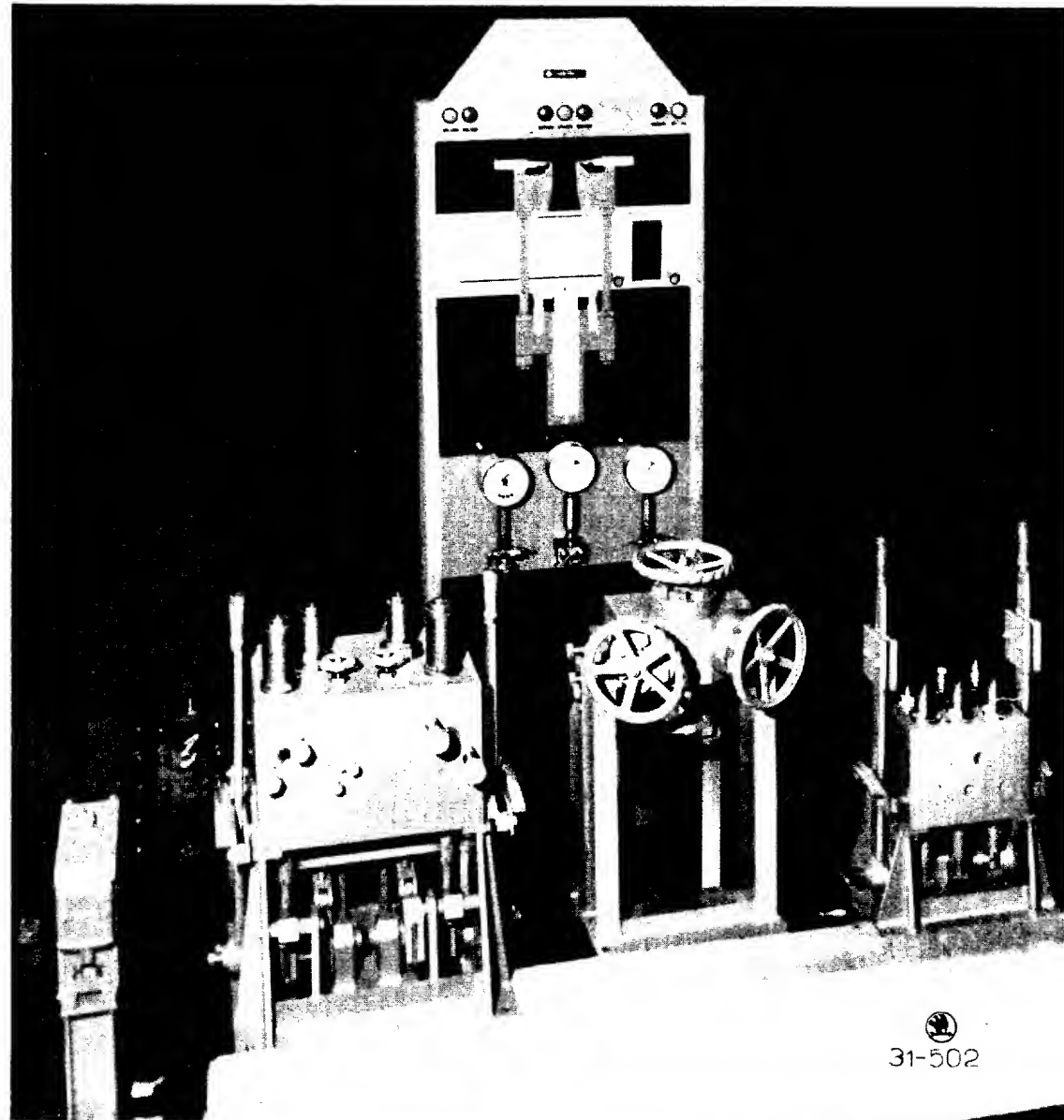


Charging air vessel with fittings.

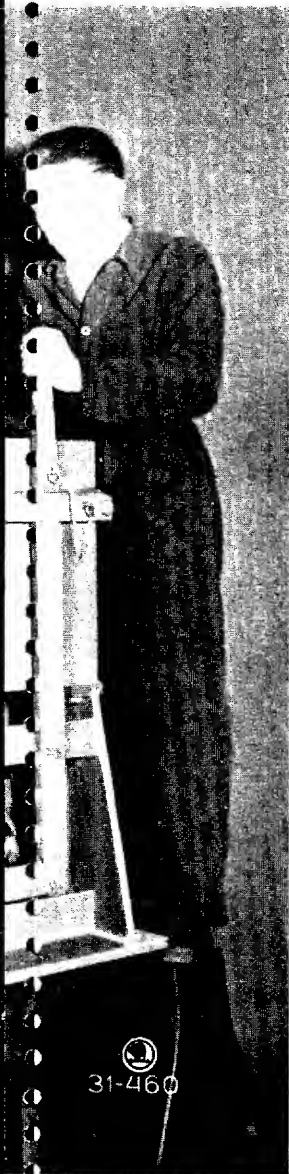


Automatic overflow valves for air vessels.

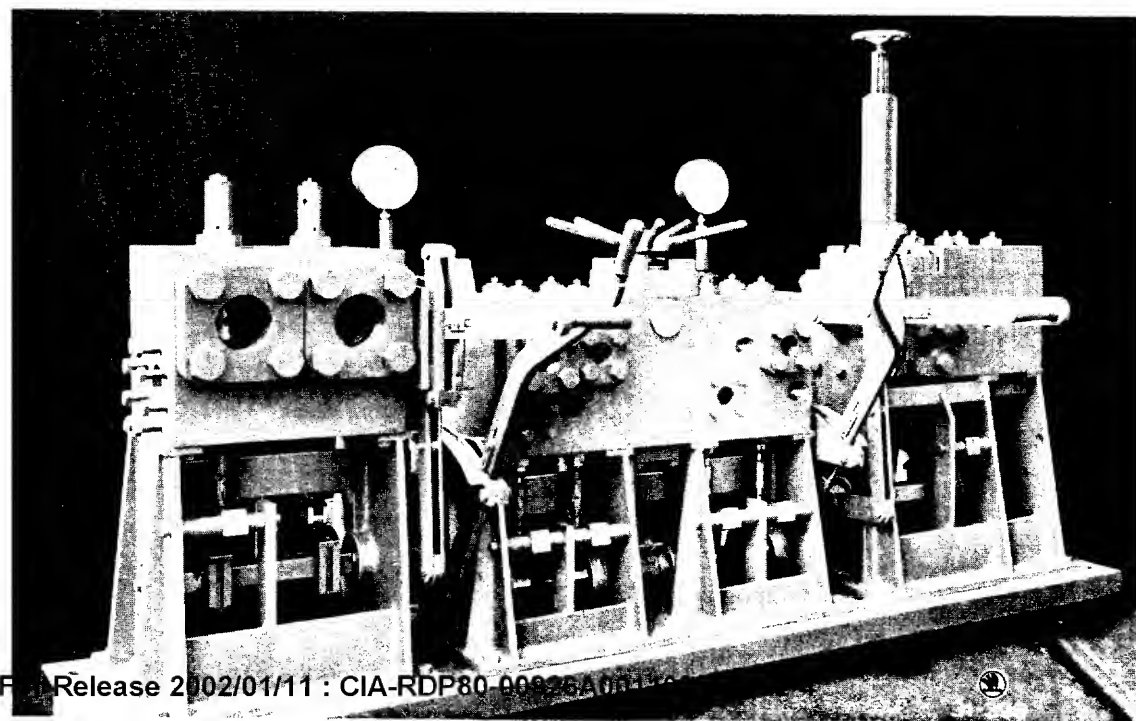
Control platform of a special
3000 t hydraulic press.



31-502



31-460



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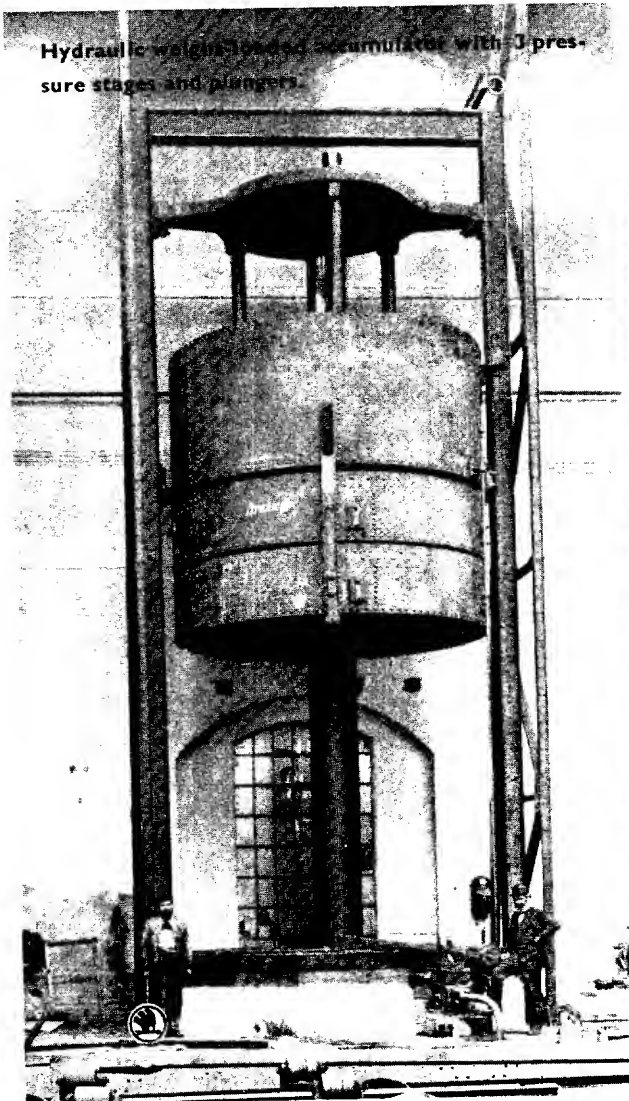
Hydraulic control of a sheet-iron press.

ACCUMULATORS

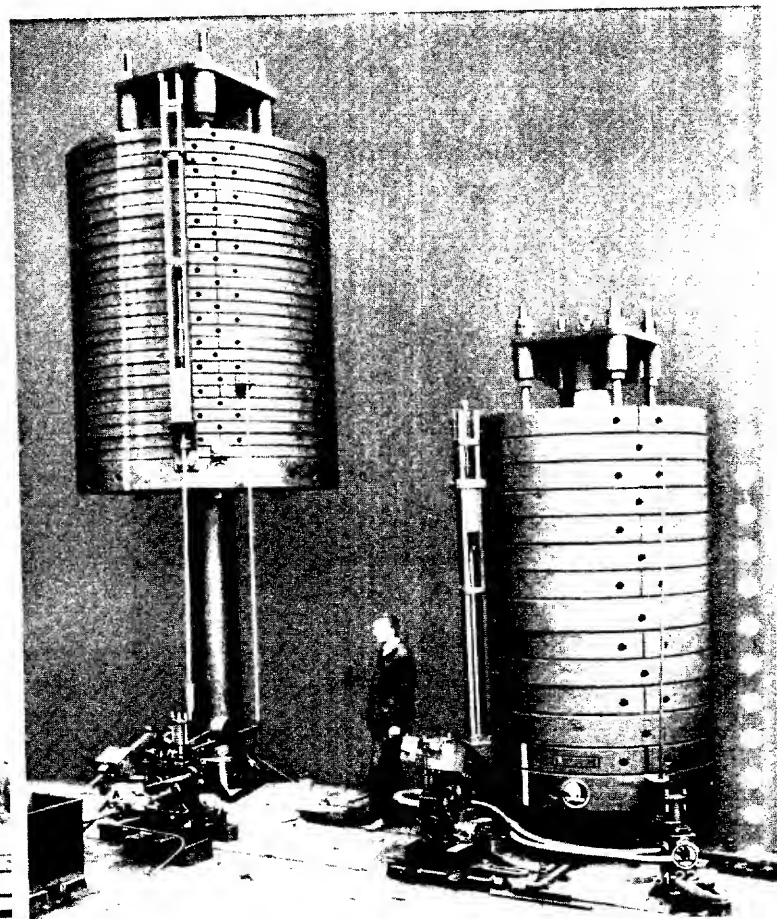
The first accumulators were equipped with plungers or differential pistons loaded by cast iron or concrete weights. Later on the loading of accumulators was done by compressed air actuating their differential pistons. The first compressed air accumulators were built by the Škoda Works about the year 1900.

As early as in 1915 the Škoda Works took up the manufacture of air-loaded accumulators with

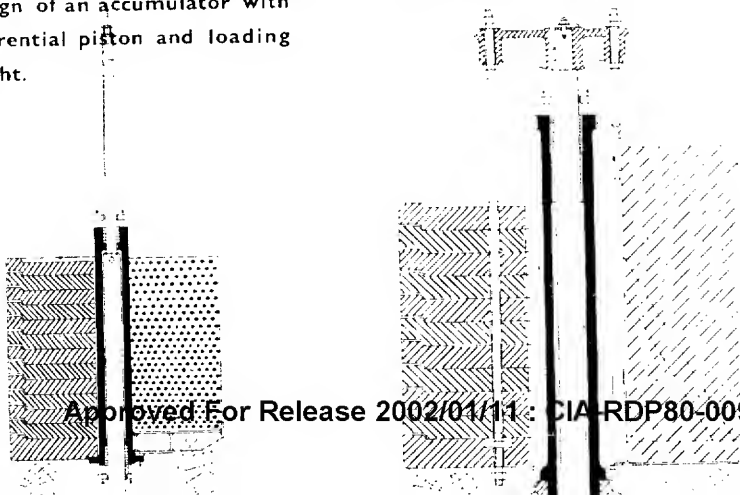
differential pistons. These had a capacity of service water of 220 galls. (1000 lit.) at 2840 lbs sq. in. and 1000 lbs sq. in. (70 at.) air pressure.



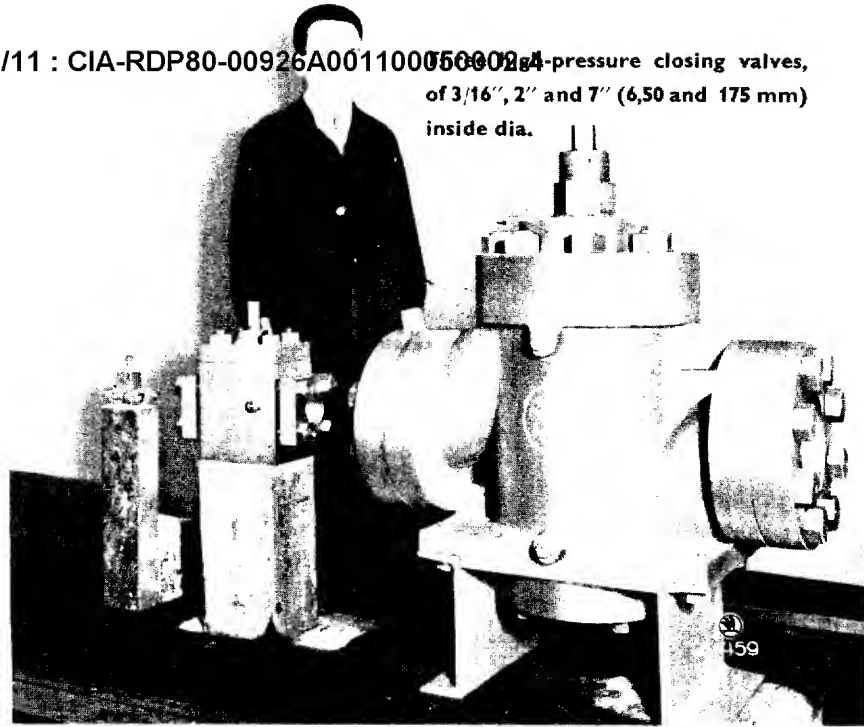
Design of an accumulator with differential piston and loading weight.



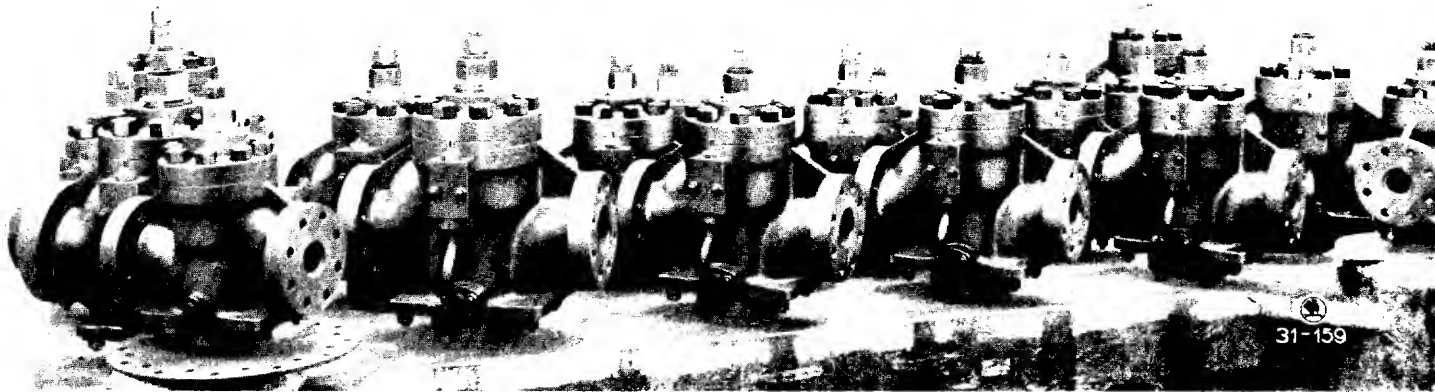
Two hydraulic weight-loaded accumulators with plungers loaded by cast-iron weights.



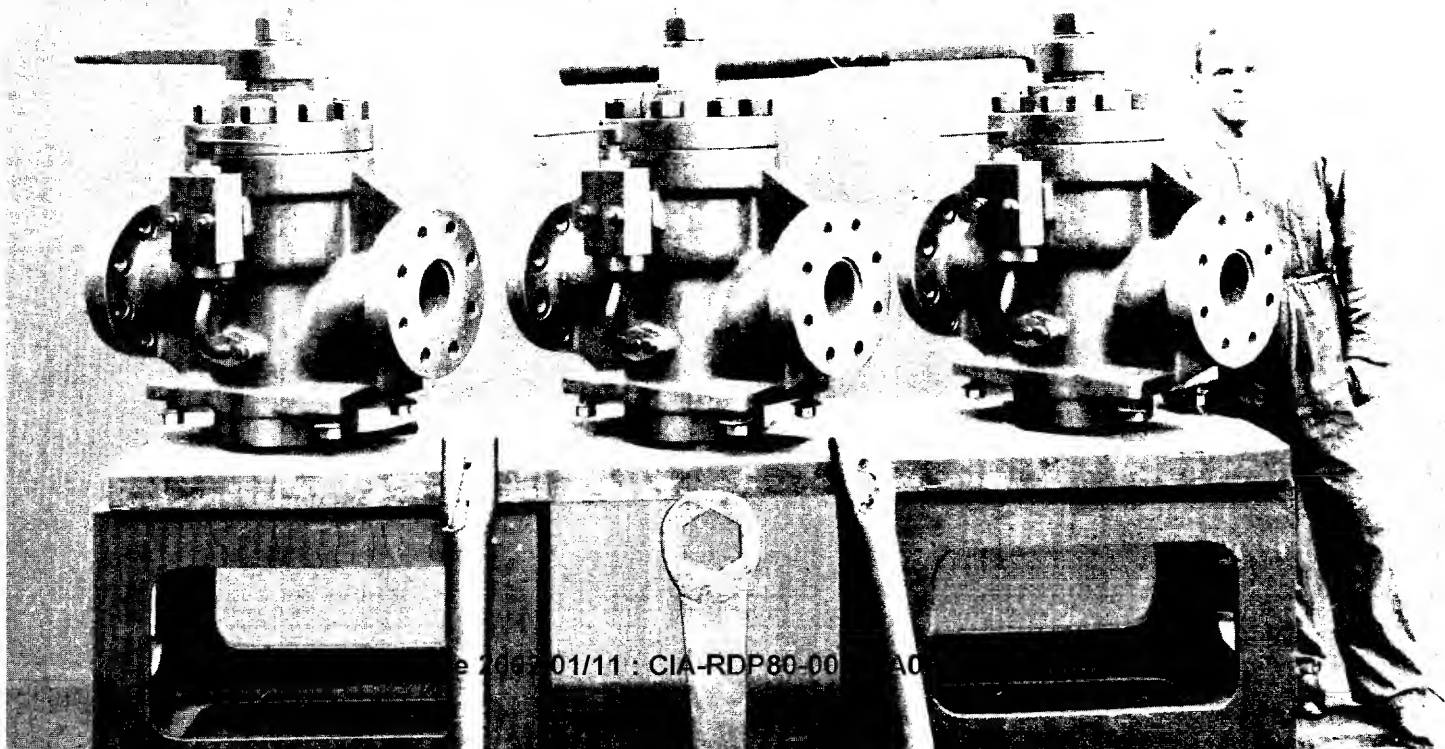
Hydraulic presses actuated by pressure water from an accumulator are provided in the intake piping in front of the governing devices with closing pressure valves, which in the case of a breakdown shut off the machine. These valves are manufactured by the Škoda Works for inside diameters up to 7" (175 mm) and pressures from 2840 lbs sq. in. (200 at) upwards.



High-pressure closing valves for a working water pressure of 3550 lbs sq. in. (250 atm.)



High-pressure closing valves 2840 lbs sq. in. (200 atm), 5" (125 mm) diameter with by-pass valves mounted on.



The latest air accumulators are the so-called piston-less accumulators. They are built for any quantity of pressure water and are provided with the latest automatic device serving for governing the pumps. The impulsive switching on and off equipment for pumps employed in the original accumulators were devised as sensitive slide controls, the function of which was derived from the change of pressure. The latest accumulators Škoda-Nesnidal. pat. No 61490 are provided with photo-cell control.

The accumulator consists of the following components:

Pressure bottles $A_1, A_2,$	Hydraulic switching on and off device
Water level indicator B , provided with	E for the pump
photo-cells $C_1, C_2, C_3,$	Minimum valve $F,$
Electro-magnetic hydraulic controllers	Safety valve $G,$
$D_1, D_2,$	Other fittings.

The pressure bottles are thick-walled cylindrical vessels either forged or machined or rolled of steel. The bottoms of the pressure bottles are made in special presses. The pressure bottle A_1 is filled partly with water and partly with pressure air, which latter is contained also in the other bottles A_2, A_3 etc. Water pressure and air pressure are equal. Charging of the accumulators with compressed air is carried out only when starting operation by means of a high-pressure compressor.

The water level indicator B is attached to the water bottle A_1 by means of valves and piping; the water level indicator effects switching of the pumps

Detailed scheme of the water level indicator is shown in Fig. 1. In the casing of the water level indicator B two glass liners K are built in and tightened on their periphery against a water pressure of 2840 lbs sq. in. (200 at) by means of leather collars. At one side of the body the lighting device H with bulb b are arranged. The light passes through the lens c and the glass liners K , thus inciting the photo-cell f , which latter is placed in the housing C on the opposite side of the casing. The influence of light produces in the photo-element a very low electric current used for releasing a double switch. By means of a stronger current governed by a double switch, another control switch of the magnetos D or D_2 is actuated, thus effecting the reverse of the electromagnetic hydraulic control.

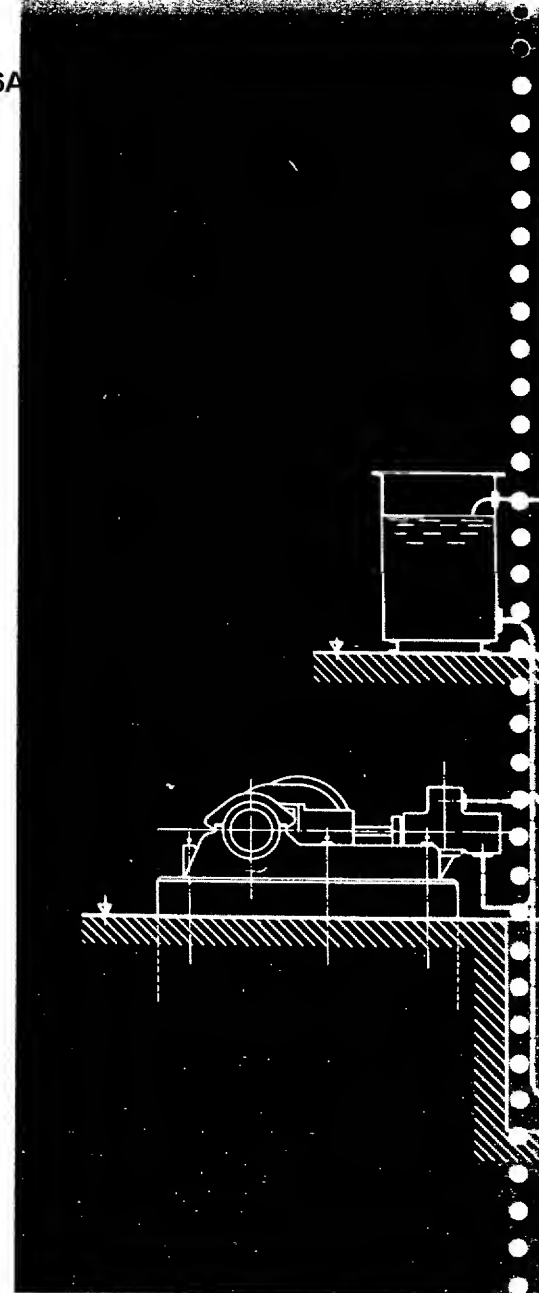
Fig. II shows a dismantled box with photo-elements.

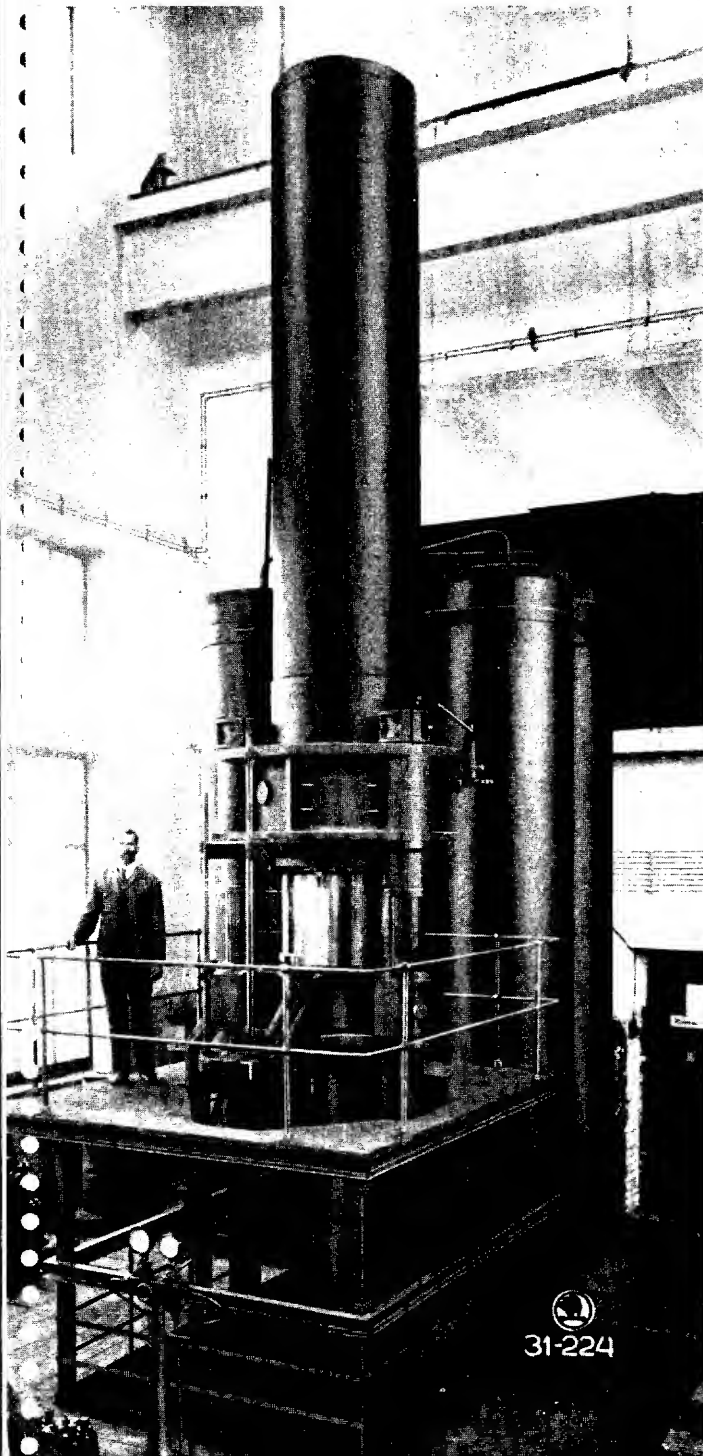
The light effect upon the photo-element is controlled by float p , placed between the glass liners k .

In accordance with the change of the water level in the accumulator pressure bottle with which the indicator is connected, the float rises or drops, thus controlling the light effect upon the photo-element. The hydraulic controllers bring pressure water to the opening and closing device E and to the minimum valve F , in which the pressure water, in accordance with the instantaneous accumulator loading performs the closing or opening of the valves. The switching on and off device E is attached to the piping J of the pressure pump, which latter supplies the accumulator through the valve K , while the valve L is closed.

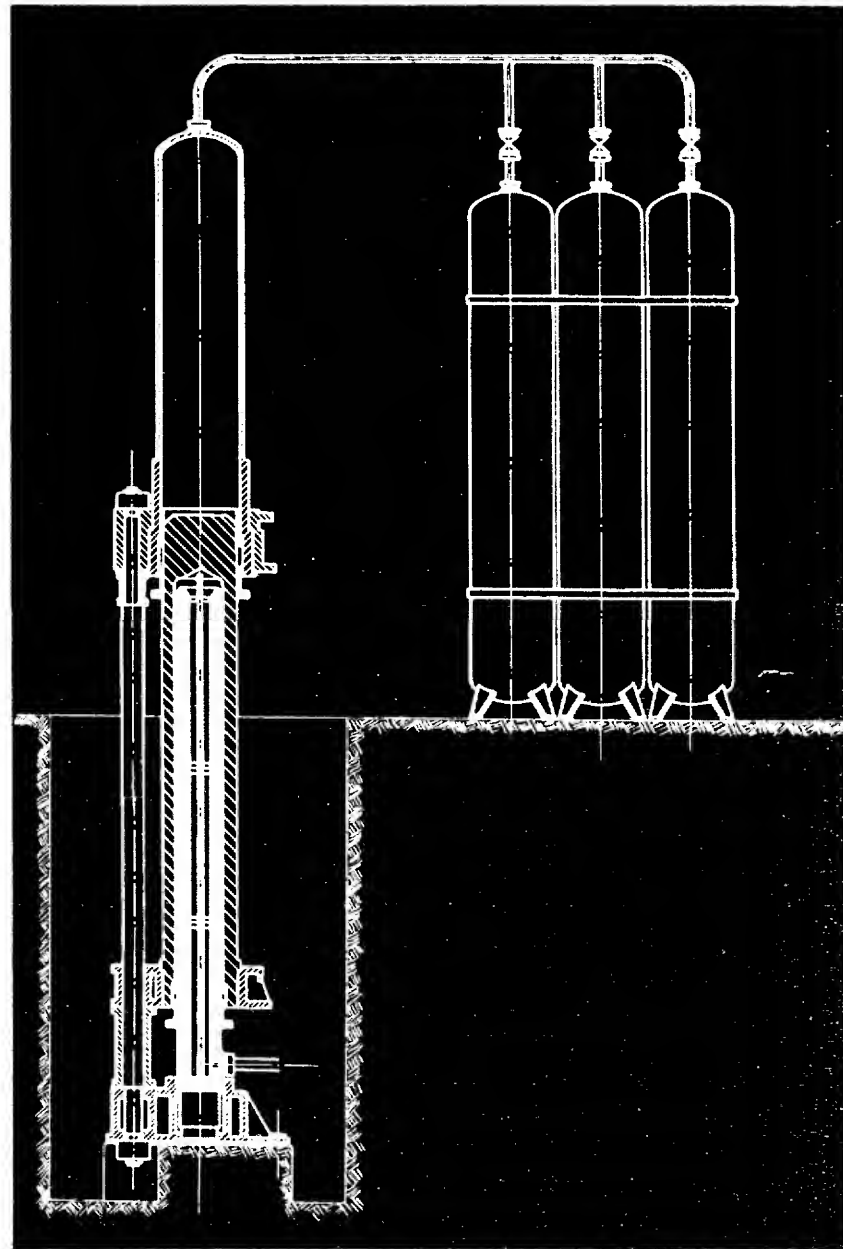
When the water level in the accumulator reaches a certain level, the float p , together with the photo-element C , performs switching off of the magnet D_1 , thus reversing the hydraulic controller, whereupon above the valve L the discharge of water and the opening of the valve is effected. Water supplied by the pump is then led under no-pressure through the piping M to the water tank.

When certain small quantities of pressure water are drawn out from the accumulator, the photo-cell in C_1 causes switching on of the magnet E and closing of the valve L , the pressure pump supplying pressure water into the accumulator bottle. The minimum valve F is built into the piping between the pump and the accumulator and is connected with the piping N , through which pressure water is brought to the presses. During operation the valve O is constantly opened and float p is at its top position. Should it happen that all useful pressure water would suddenly be consumed and the water level at the same time would drop to its minimum mark, the aforementioned float and the photo-cell in C_1 switch over the magnet D_2 and the valve O is forcedly closed, thus preventing further discharge from the accumulator. The accumulator plant is in addition equipped with safety valve G . In case of a breakdown, which may cause either an abnormal rise or drop of pressure, the accumulator is provided with a minimum-maximum pressure

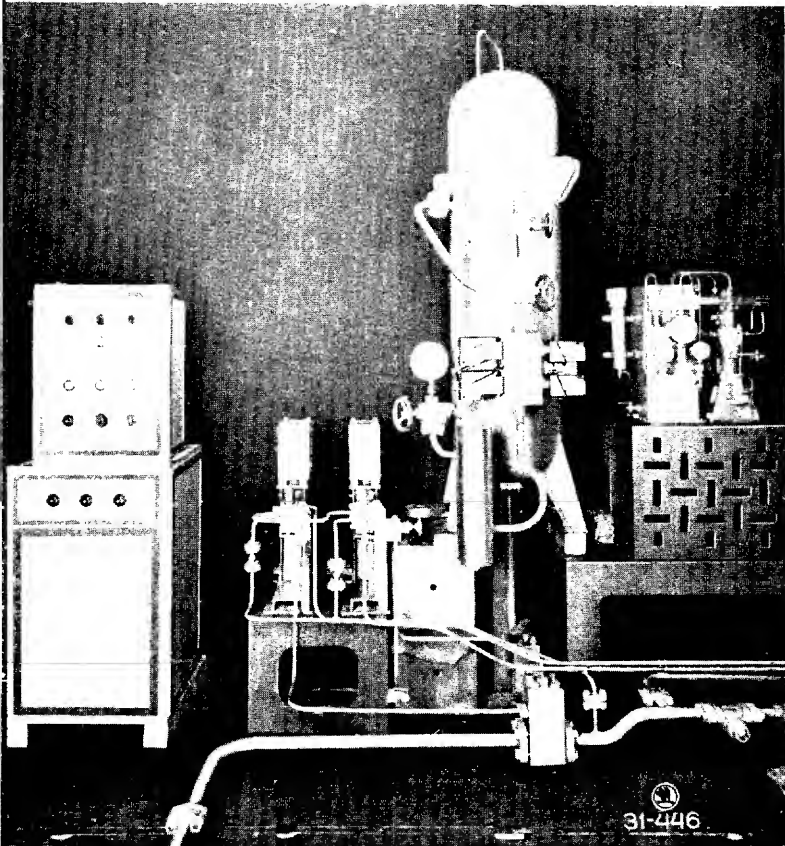




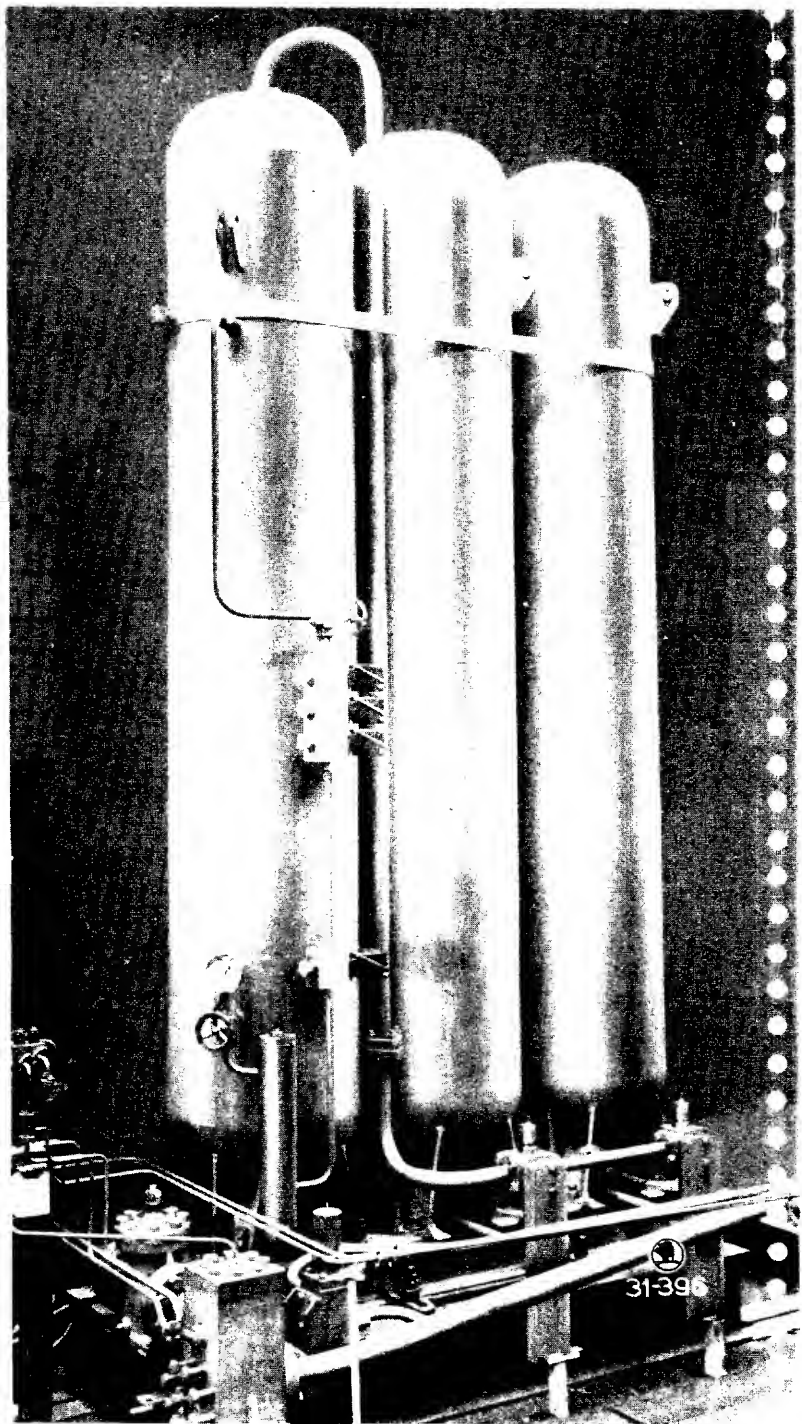
31-224



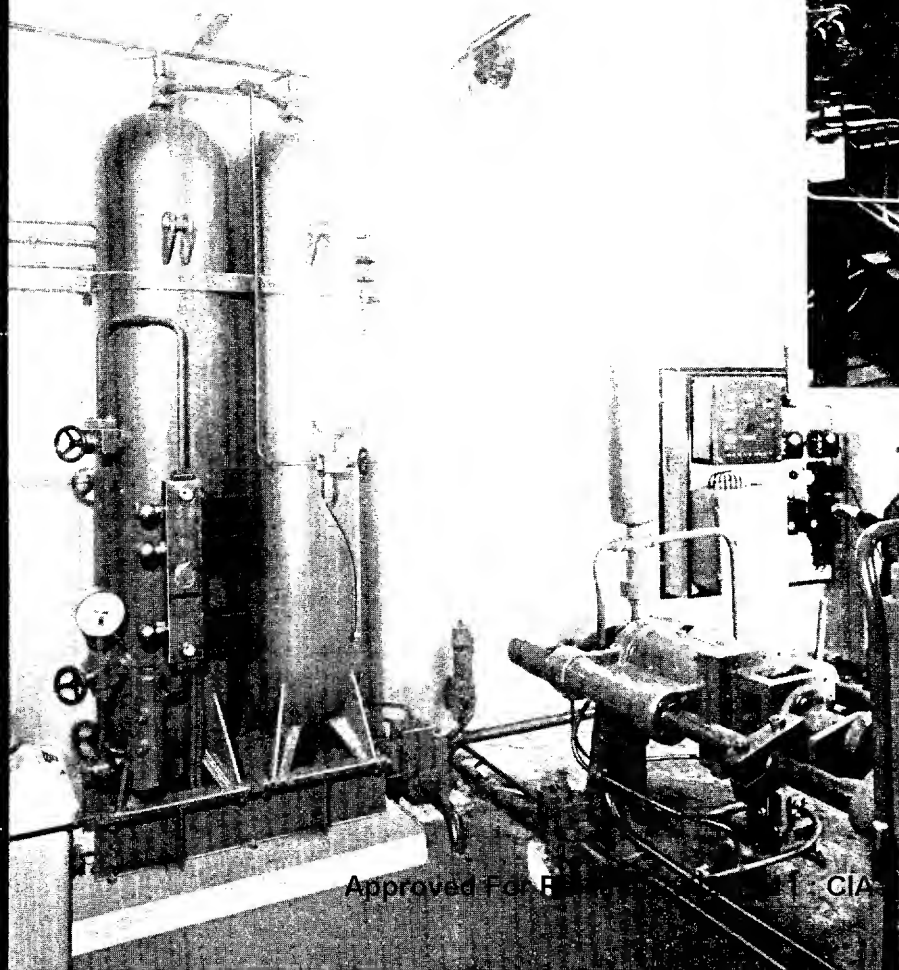
Scheme and illustration of an accumulator with piston and compressed air loading.



Hydraulic piston-less compressed air accumulator 2840 lbs sq. in. (200 at.), useful contents abt. 4.5 gall. (20 l) with photo-cell control of pumps.

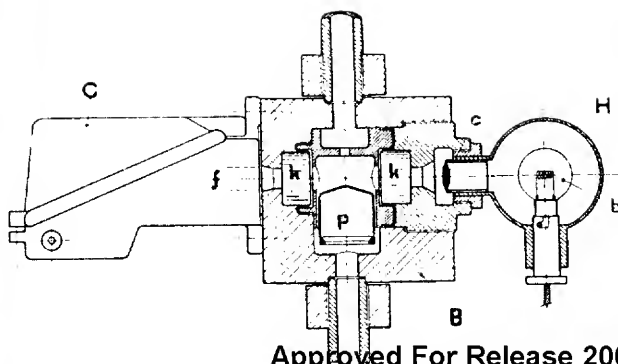
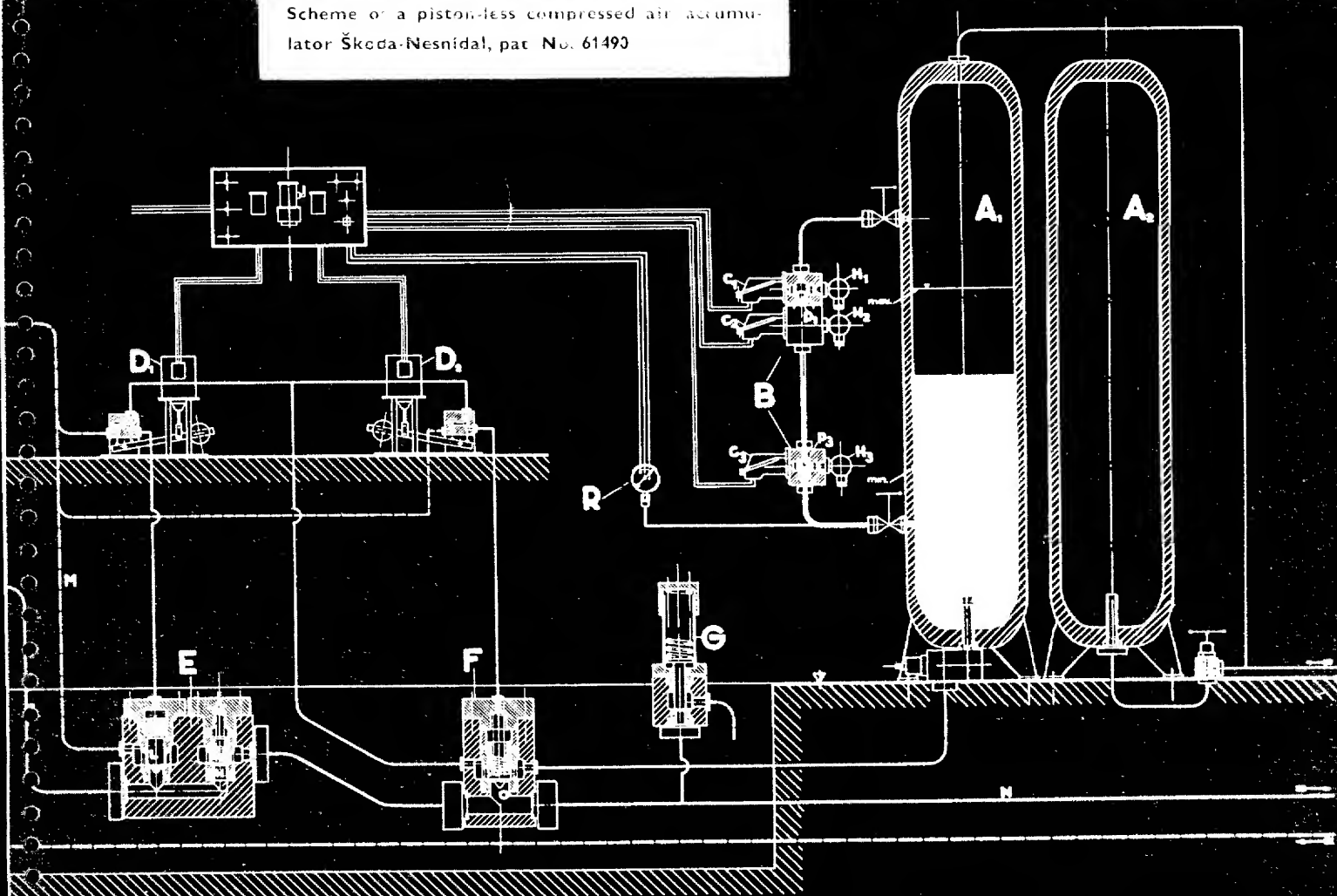


Hydraulic piston-less compressed air accumulator 2840 lbs sq. in. (200 at.), useful contents abt. 130 gall. (600 l) with photo-cell control of pumps.

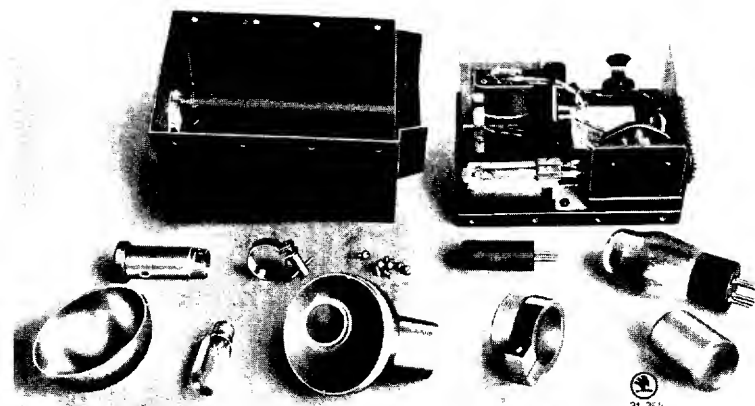


Hydraulic piston-less compressed air accumulator 2840 lbs sq. in. (200 at.), useful contents abt. 18 gall. (80 l) with photo-cell control of pumps.

Scheme of a piston-less compressed air accumulator
Škoda-Nesnidal, pat. No. 61493



Approved For Release 2002/01/11 : CIA-RDP80-00926A001100050002-4

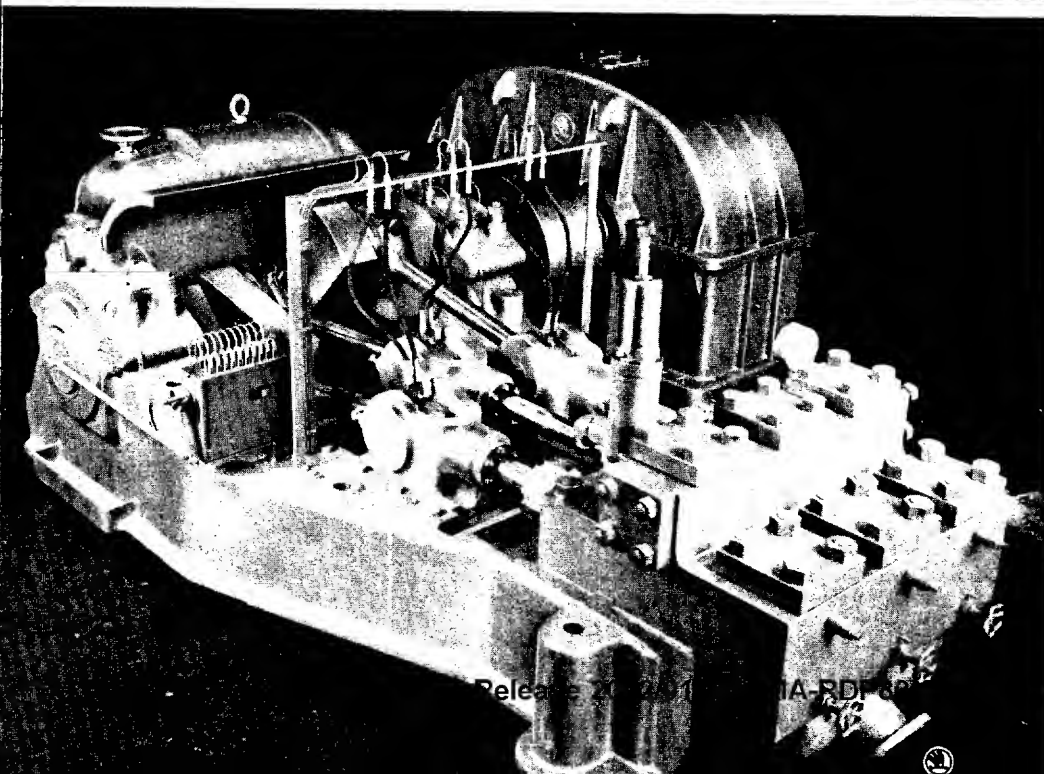
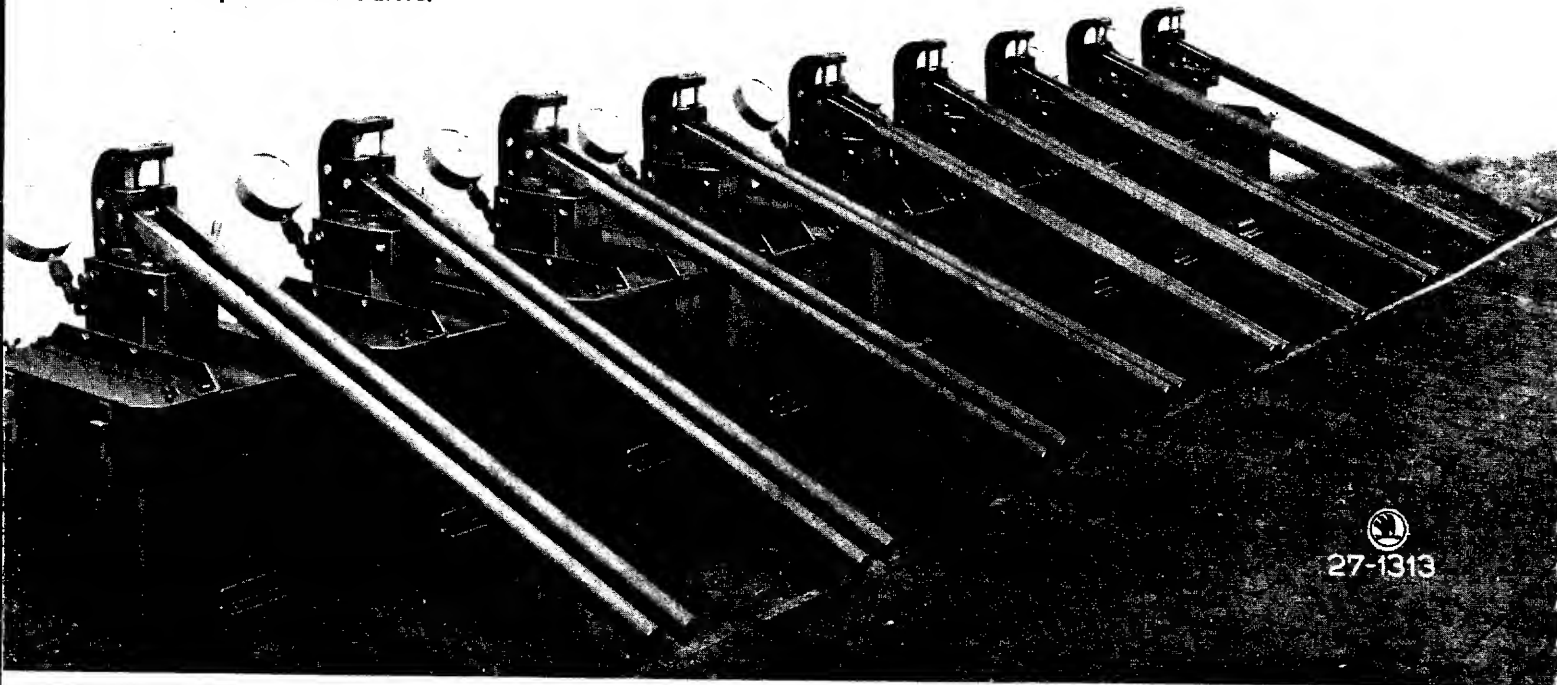


Detail of a water level indicator (I).

Dismantled photo-cell box (II).

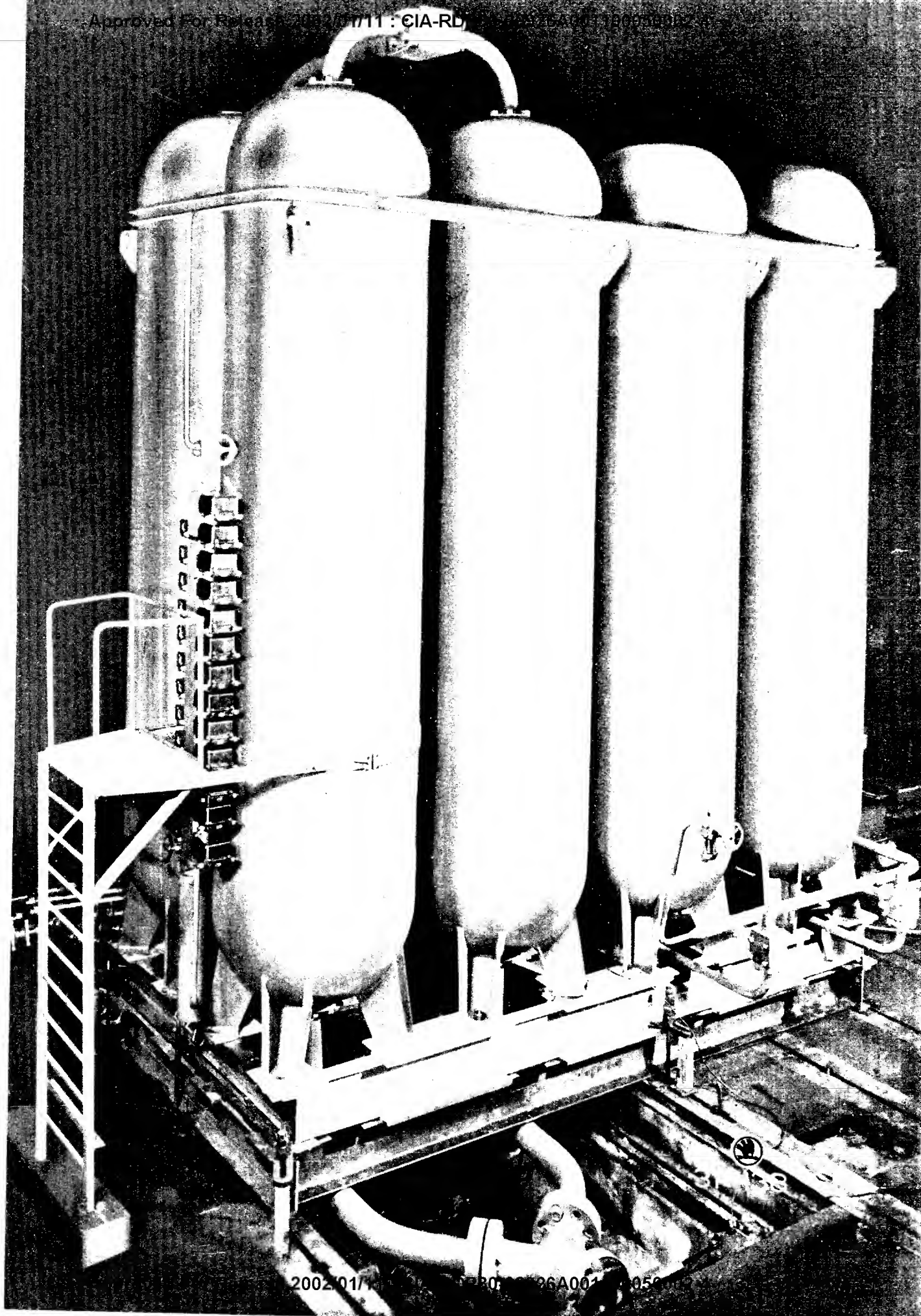
Plunger pumps are driven either directly or over a gearing by means of electric motors. In case of smaller plants use is occasionally made of belt-drive. The Škoda Works build pressure pumps both for manual or mechanical drive of vertical design for outputs up to 100 HP and of horizontal design for any required pressure and output. The Škoda Works manufacture pumps with 2, 3, 4, or 6 plungers driven by belts (smaller plants) or directly by electric motors over gear-wheels. In large pumping plants the gearings are housed in a special casing.

Pumps for manual drive.



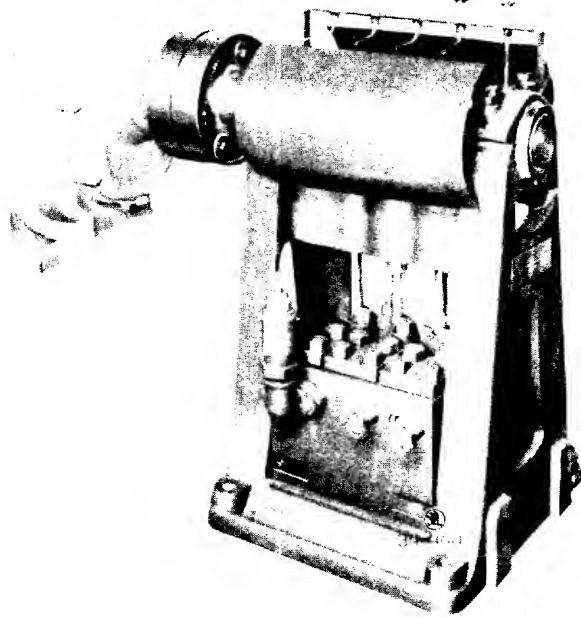
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Horizontal pressure pump with 3 plungers, 310 Hp, 2840 lbs sq. in. (200 at)

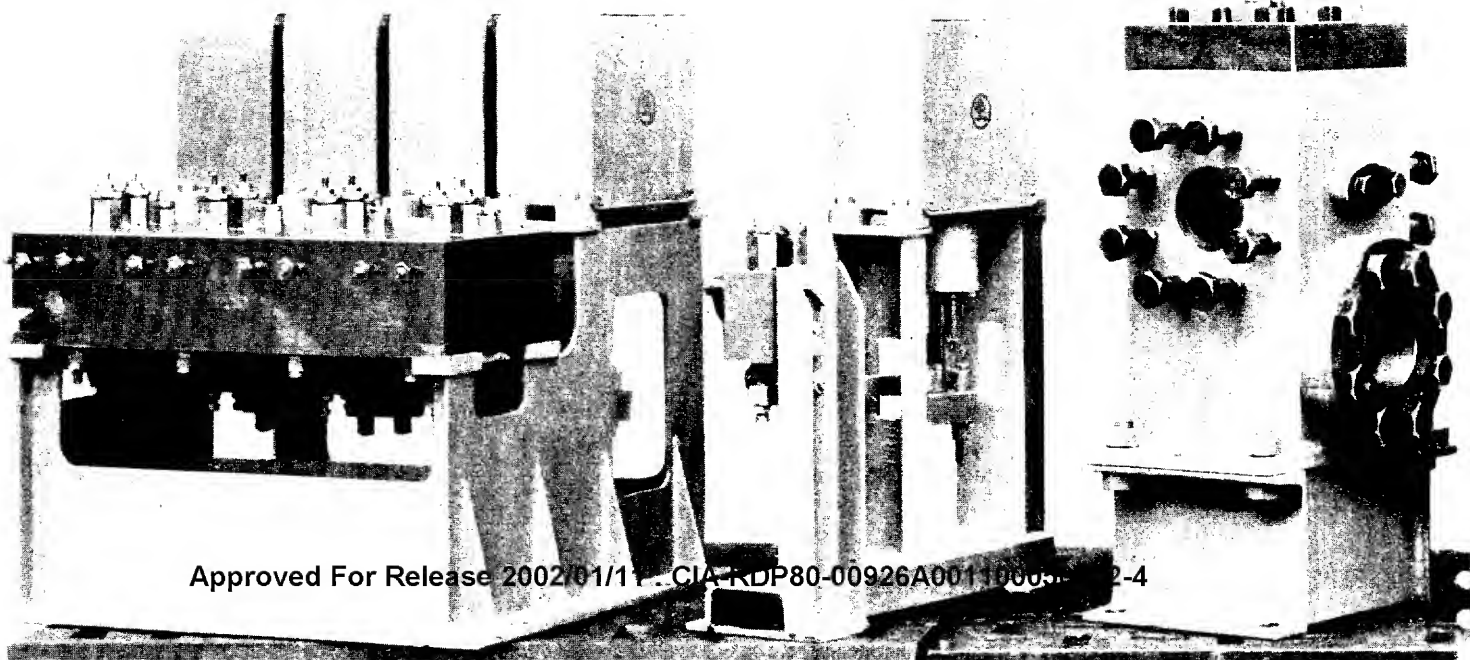
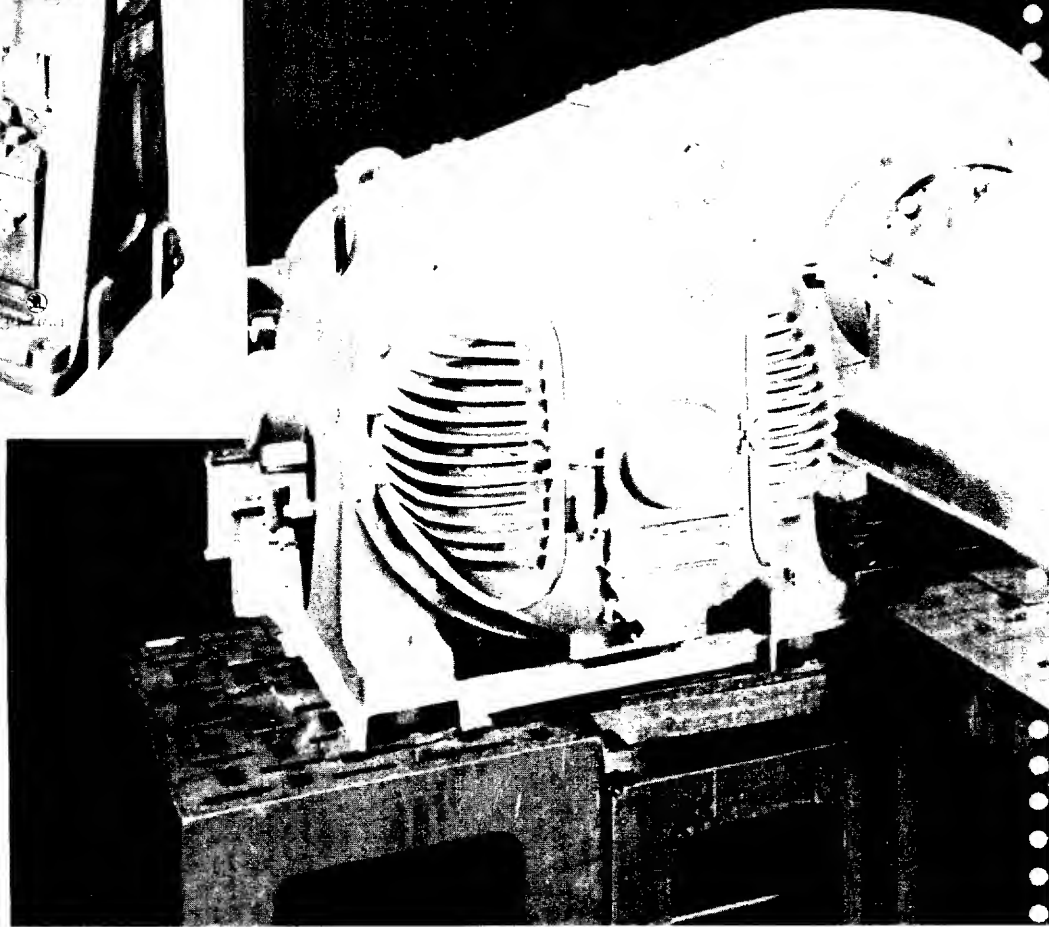


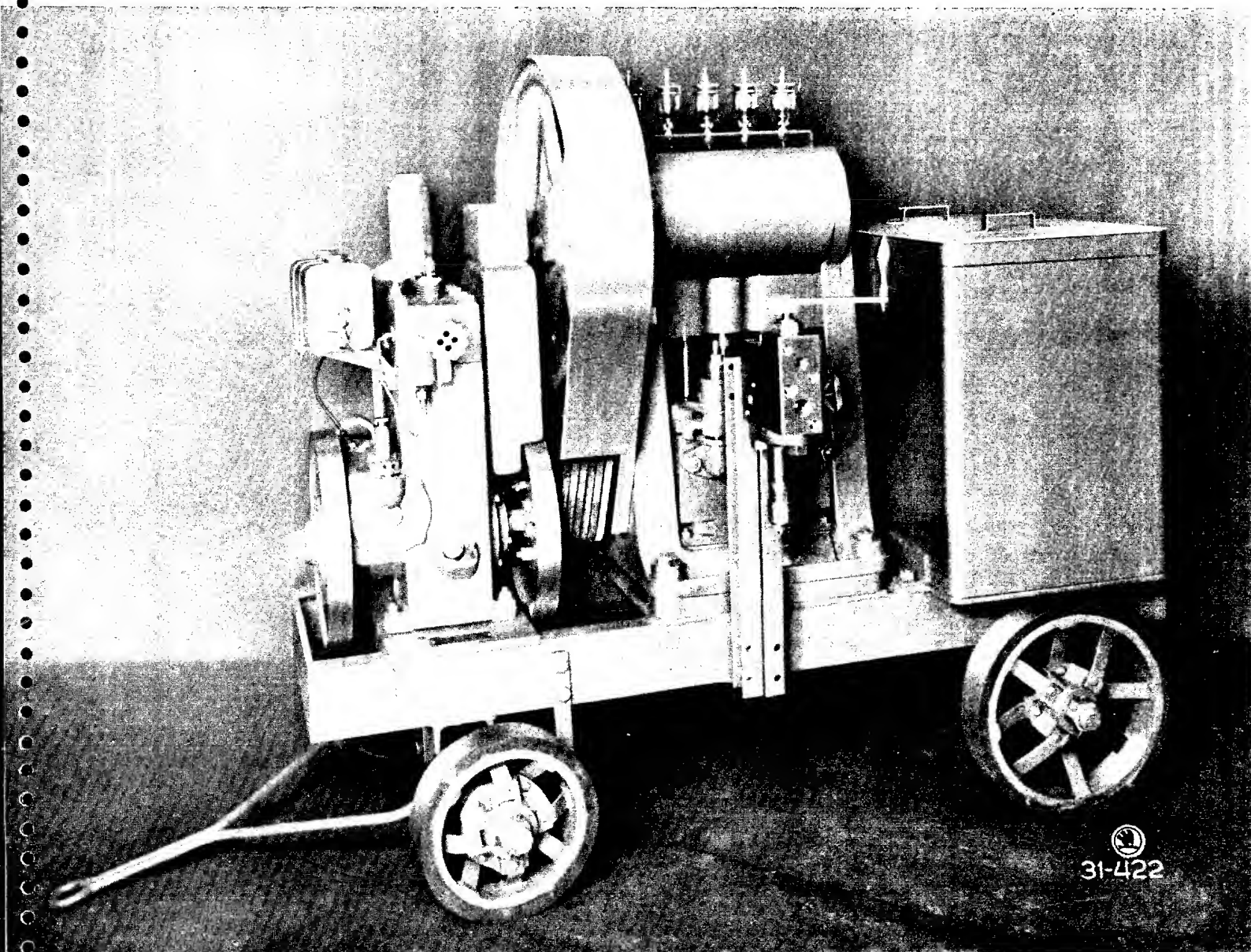
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Vertical pressure pump with
3 plungers for 2840 lbs sq. in.
(200 at.), abt. 3 gall. (12 l) per
min. with direct electric drive.

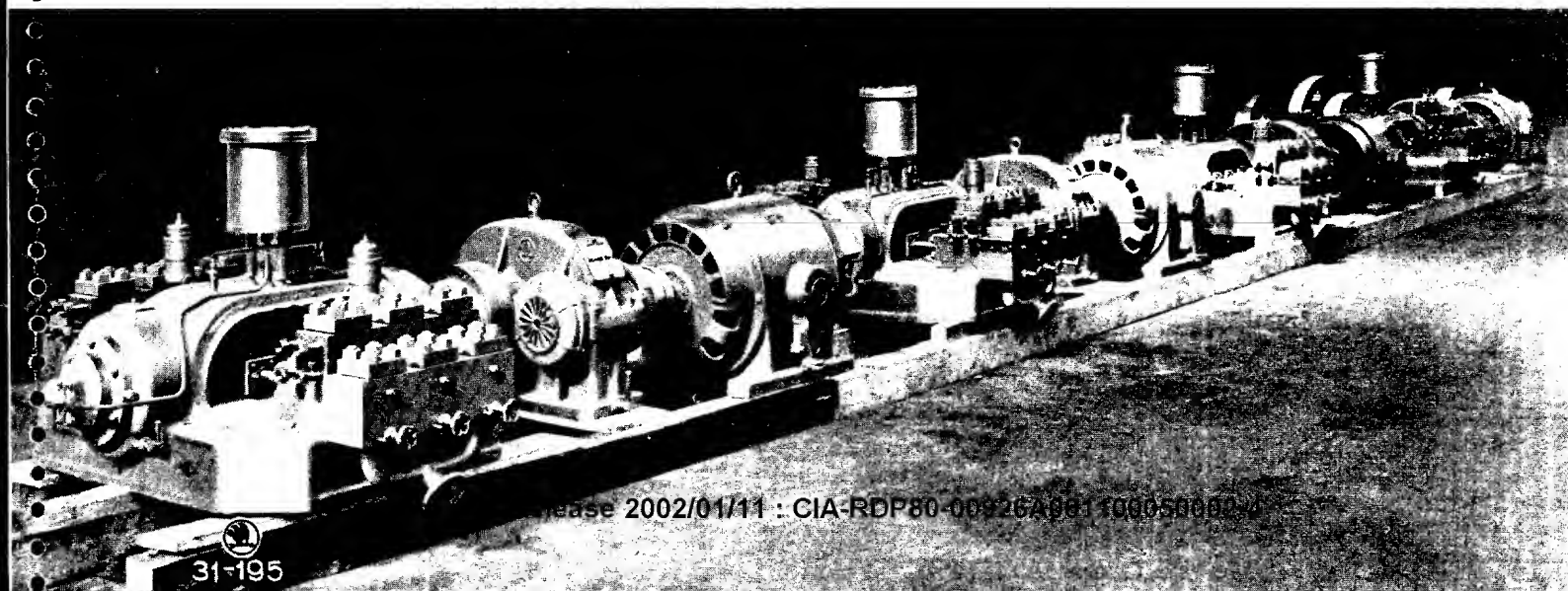




31-422

Portable vertical pressure pump with 3 plungers driven by a combustion engine.

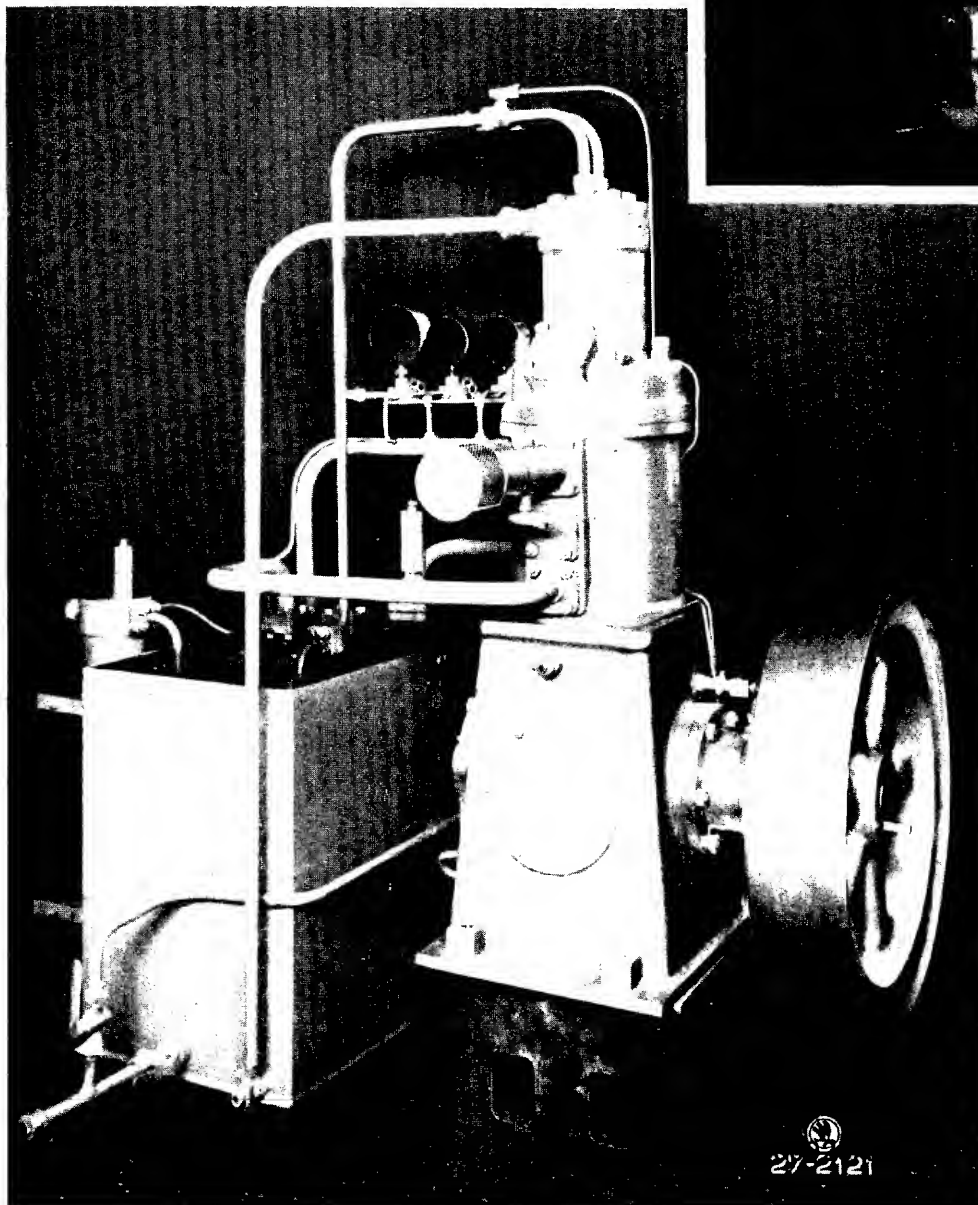
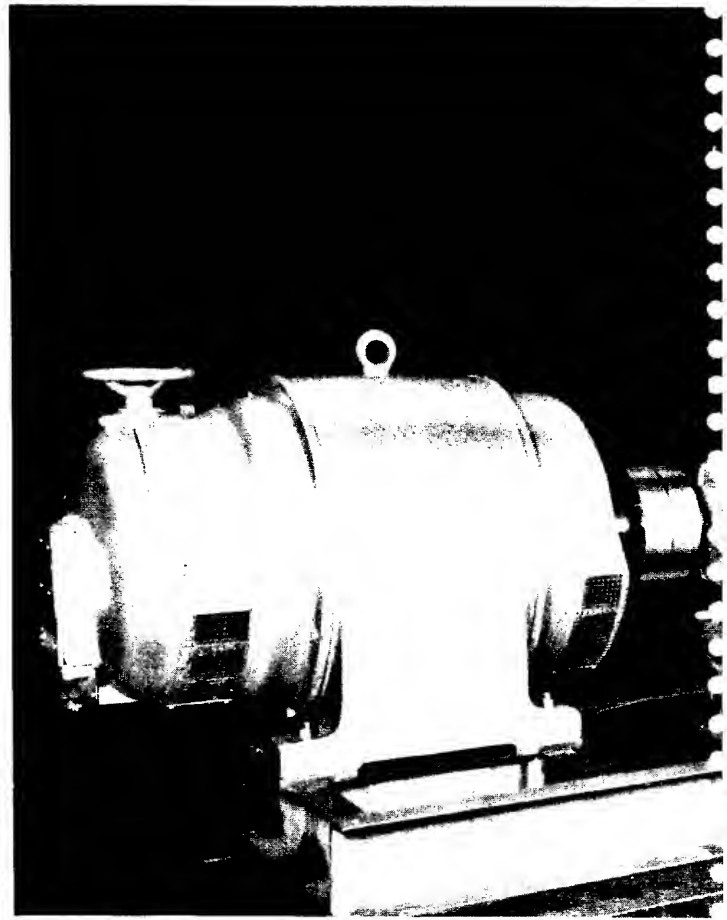
Four pressure pumps with 6 plungers each, 5680 lbs sq. in. (400 at), abt. 20 gall. (85 l) per min. with direct electric drive.



31-195

COMPRESSORS

High-pressure air compressors for charging air-loaded hydraulic accumulators.



Vertical compressor
abt. 2100 cu. ft. (60 cu
ft. per hour, air pres-
sure 2840 lbs sq. in.
(200 at)

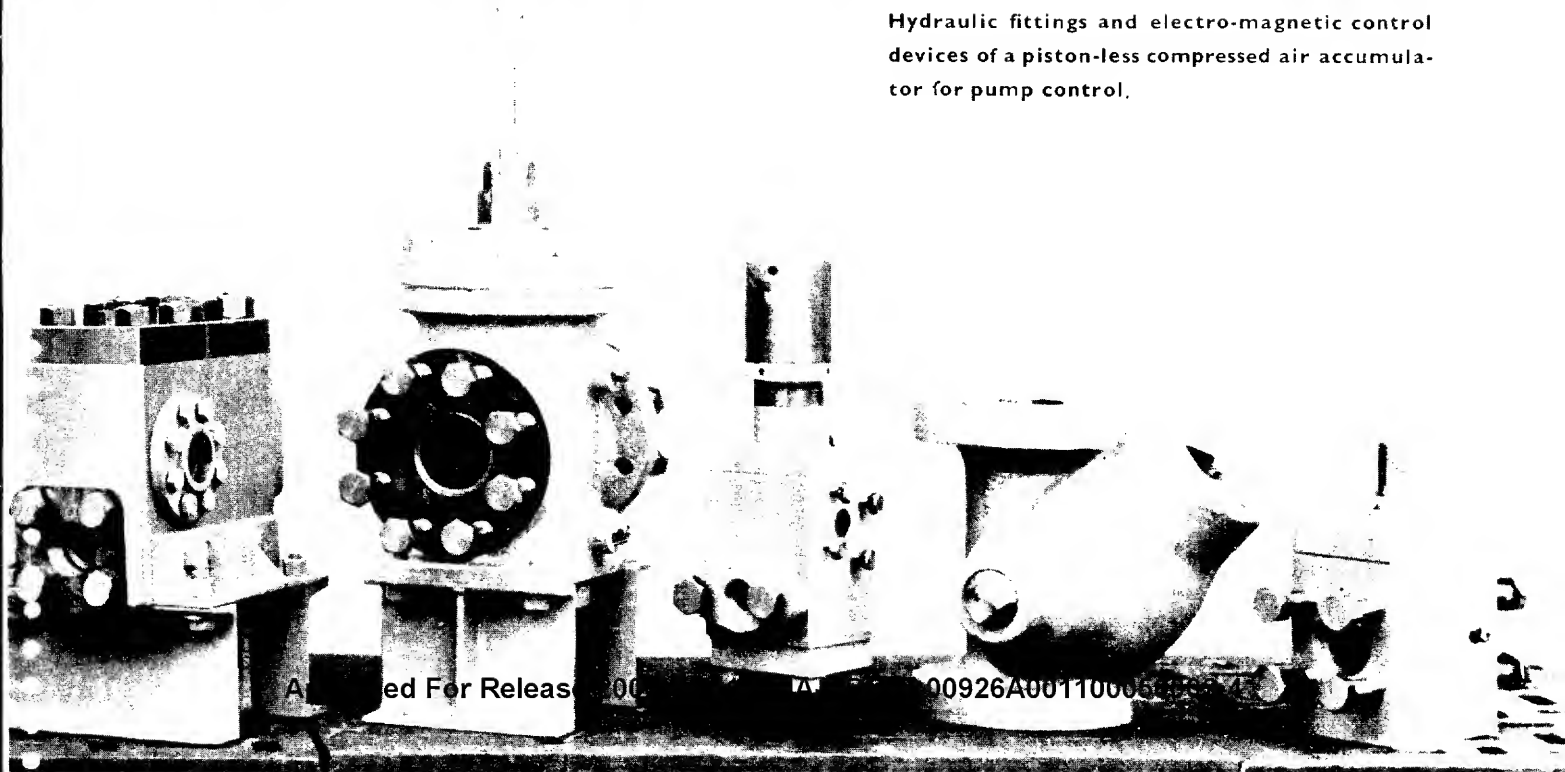
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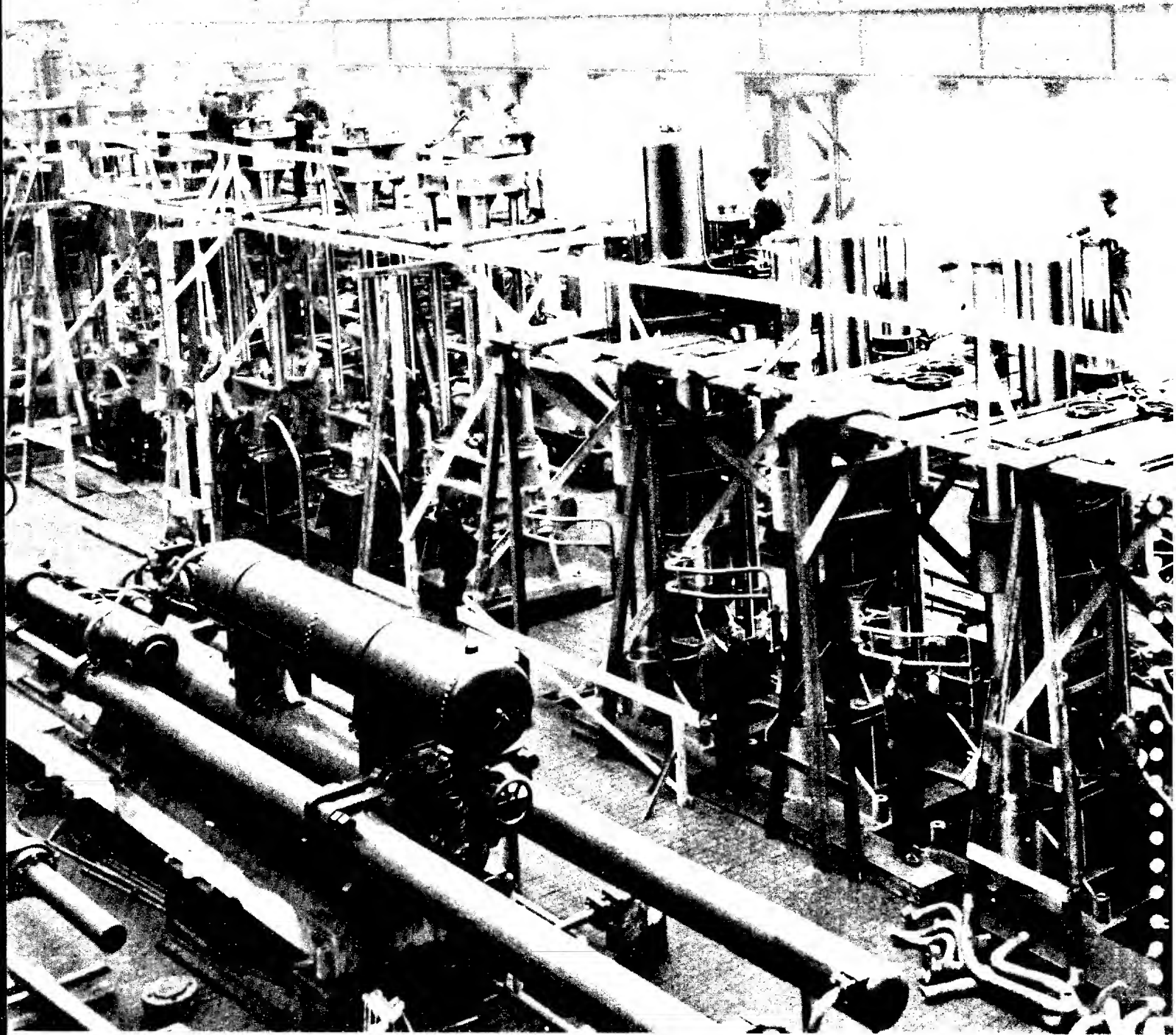
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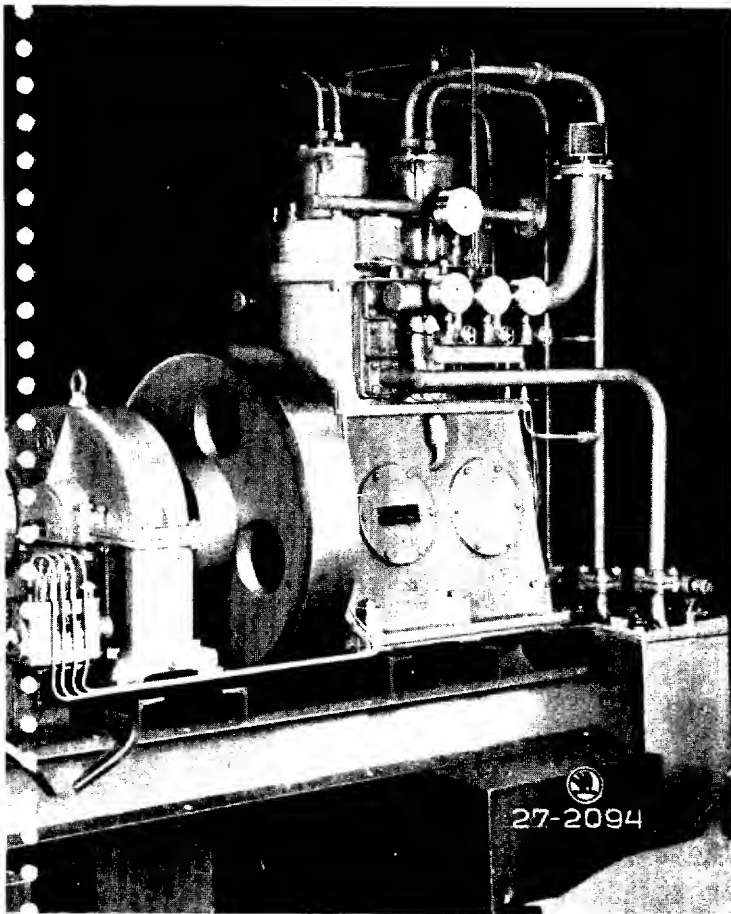
Horizontal pressure pump with 4 plungers 2840 lbs sq. in. (200 at.), 555 HP, abt. 220 gall (1000 l) per min. with circulating pressure lubrication.

Hydraulic fittings and electro-magnetic control devices of a piston-less compressed air accumulator for pump control.

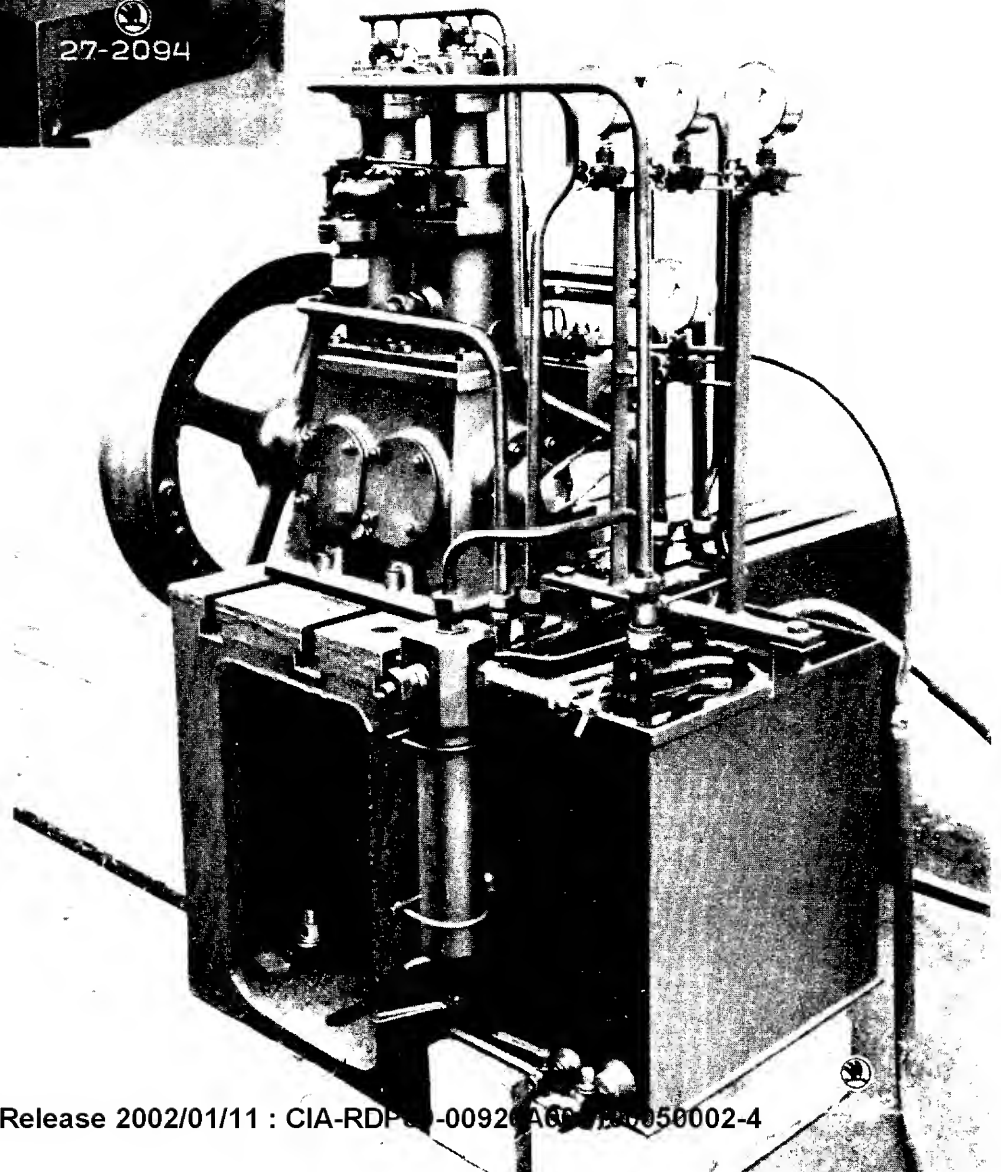




Assembling hall for hydraulic presses.



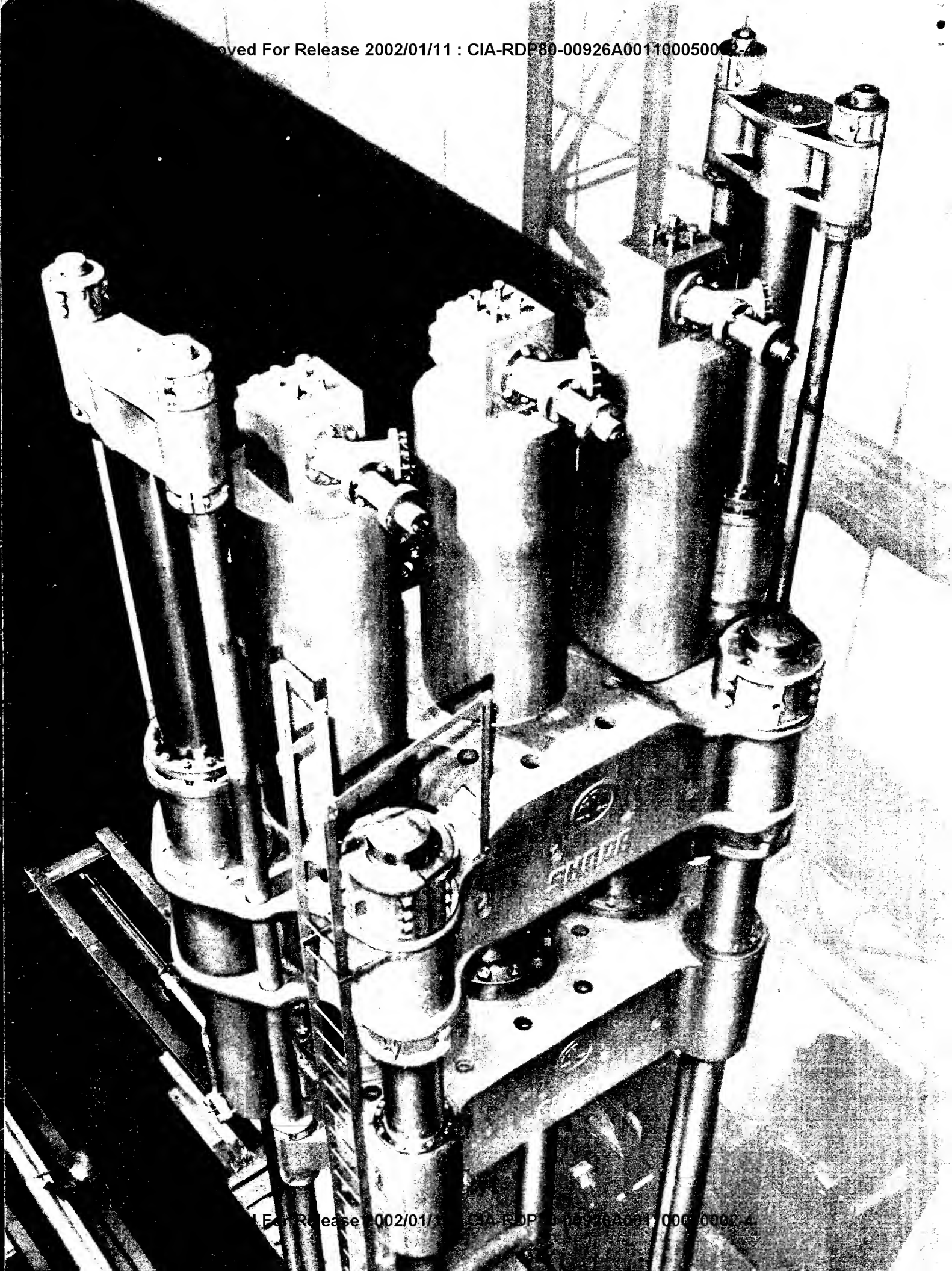
Vertical four-stage compressor, output abt. 6000 cu. ft. (170 cu m). per hour 2840 lbs sq. in. (200 at) with electric drive over a gear-box.

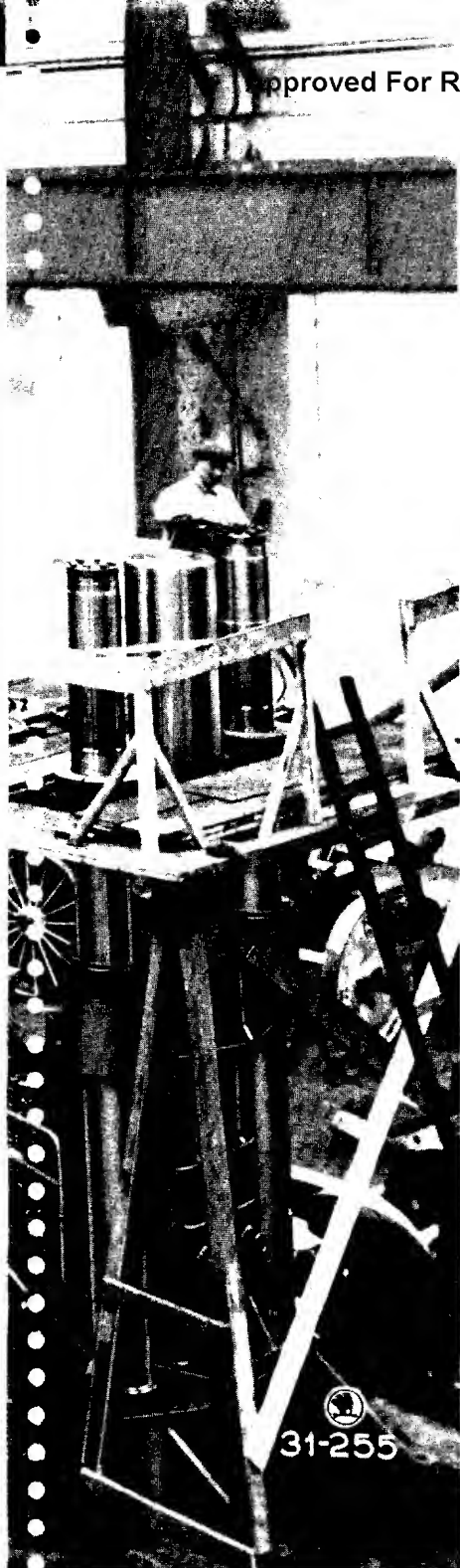


Vertical three-stage compressor, output

abt. 700 cu. ft. (20 cu. m.) per hour, 2840 lbs

sq. in. (200 at.)





The first-class workmanship together with the latest designs developed by research work and practical tests, ensure for the Škoda Works an extensive activity in the building of hydraulic presses. Numerous hydraulic pressing plants supplied to various industrial undertakings give an impressive proof of their working efficiency. The Škoda Works not only build complete presses and their accessories, but also supply castings and forgings of individual components of hydraulic presses for all working capacities and weights.

Hydraulic press frame loaded on a railway wagon.



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